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YATSU-GA-TAKE, HAKU-SAN, AND TATE-YAMA.

NOTES OF A SUMMER TRIP.

By R. W. Atkinson, B. Sc. (Lond.)

[*Read October 14, 1879.*]

I have selected the three mountains above named as a heading for this paper, because they stand out prominently in my recollection from the other districts visited, and because they may also serve to mark the divisions of the journey I took during the past summer (1879) into Shinshiu, Hida, and Etchiu, in company with my friends Prof. Dixon and Mr. Nakazawa. We proposed to pass directly from Musashi into Shinshiu by following the direction of greatest length of the former province, and then, having crossed over the range Yatsu-ga-take, to make for the southern point of Hida, and, traversing the western boundary, to ascend Haku-san, a sacred mountain situated at the point where the three provinces,—Kaga, Hida, and Echizen,—meet. Descending on the same side, we intended to cross eastwards to the largest branch of the Jindzû-gawa, and to sail down to Toyama, in Etchiu, from which we could ascend Tate-yama, and cross over the Harinoki tôge into Shinshiu by the Shindô.

This programme was carried out with one exception. For reasons to be given hereafter we descended Haku-san, not on the Hida, but on the Kaga side, which compelled us to abandon the sail down the Jindzû-gawa, a circumstance we very much regretted, as glowing accounts had reached us of the beauty of the scenery.

As a contribution to the geography of some little known parts of this island, I have ventured to put into shape some notes taken during the trip, and have appended a sketch map of the route, as well as tables giving the approximate heights of places through which we passed, and the names of some of the more striking flowers which were in bloom at the time.

With regard to the heights given in the tables, a few words are necessary to explain how far they are to be relied upon. All of them were determined by means of an aneroid barometer, by Negretti and Zambra, kindly lent to me by Mr. Satow, and graduated from 31 to 21 inches. In every case I noted the reading in inches as well as the time, and whenever we remained an hour or more in one place I took the reading at the end as well as at the beginning of our stay. At night I usually took two readings, one immediately on entering the tea-house, and another later in the evening, about 8 or 9 o'clock; whilst in the morning I took only one, except occasionally.

Professor Mendenhall has been so good as to compare the aneroid with the standard mercurial barometer of the Kaga Yashiki observatory, and has furnished me with comparison curves of the two instruments from observations taken during a fortnight, Aug. 19th to Sept. 2nd, from which it appears that the aneroid had been only partially compensated for temperature. The small difference between the readings of the aneroid and the mercurial barometer, when the latter had been corrected for temperature, has been corrected in the numbers given in the tables, and they, therefore, represent the actual height of the mercury, corrected for temperature, at any given time. I am also indebted to Prof. Mendenhall for the barometric readings in Tôkiyô during the whole of the period of our trip, and this has enabled me to calculate the approximate height corresponding to the readings observed. At the same time many circumstances may interfere to render the heights incorrect to some extent; indeed it is scarcely probable that the average error is less than 100 ft., and it has, therefore, seemed unnecessary to give the exact numbers obtained by calculation, and in place of them I have chosen the nearest ten to the number found. Thus, supposing the calculated height of any place to be 2437 ft., I have given the number 2440 ft., although even in that number the height is given with more apparent accuracy

than the method warrants, for, as only one reading was taken in the majority of cases, a local disturbance would tend to raise or lower the apparent height by as much as 50 or 100 feet. In order to get a smaller error it would have been necessary to institute a series of observations extending over a week or a fortnight, and to compare them with readings taken at similar times at the sea-level, or some other place, the exact height of which was known. In this way Mr. Knipping ascertained the height of Fuji-san, and found a number closely agreeing with the one found by Mr. Stewart from trigonometrical measurements.

I have to thank Mr. Matsumura, of the Tôkiyô Daigaku, for assistance in the determination of many of the plants obtained during the trip. It would probably lead to the discovery of many new species, were those who wander into parts of Japan not much known, to carry with them a collecting portfolio, and to preserve the dried plants till their return to Tôkiyô, where the flowers could be examined. In collecting, I employed two portfolios, one for pressing, and another for storing. Each consisted of two flat, strong, boards, about 18 by 11 inches, holding a number of sheets of a thick, grey, bibulous paper, and fastened round with a pair of ordinary rug straps. As soon as my collecting book was full, the plants then collected and already partially dried, were transferred to the storing portfolio, in which they remained until I reached Tôkiyô. Some had become a little mouldy, but the mould was easily removed by painting the plants over with a solution of carbolic acid or salicylic acid, and again subjecting them to pressure in fresh paper. In this way most of those which were not very succulent had preserved their form and colour very well.

Before starting we had many discussions as to the best form of foot-gear to adopt. Opinions on this point were very conflicting, and after having tried various kinds during this excursion, I can understand why it should be so. Different observers will be apt to lay stress upon different points, and of the three kinds of walking apparel I have tried, each has advantages over the others under special circumstances. The principal objection to the use of our ordinary boots is, that there is not sufficient friction between the soles and the road-way. Along level or slightly sloping ground, this is not felt, and the "spring" there is in the sole assists the power of walking very materially, whilst walking in

waraji becomes extremely fatiguing under such circumstances. But, if the road becomes greatly inclined, and perhaps stony, as in ascending the greater number of passes in Japan, *waraji* have the advantage over boots on account of the greater friction between them and the roads. They are, however, no protection to the feet; there being no "spring" in them the foot falls "dead" upon the ground. The ball of the foot thus gets many unpleasant shocks, and a tendency for the tendons of the foot to contract shows itself, and this makes walking very painful. But it is in going down hill over a stony road that *waraji* show themselves to least advantage. In this case the fault just referred to is exaggerated, and the feet become so sensitive to the smallest pebble, that it is agony to proceed. After trying *waraji* in conjunction with *tabi* a few times, over this kind of ground, I abandoned the *tabi*, and fastened the *waraji* on the outside of my boots, an arrangement which gave all the advantages of both. The *waraji* can be very quickly made by a skilful workman, although it is better to have a supply made before starting, having a kind of cap formed of three or four cross strings proceeding from the centre and two sides of the toe end. These strings then pass backward, through the side loops, and are fastened in the usual way. This I consider to be the best arrangement for ordinary walking, if care be taken to see that the fit is perfect. If they do not fit well they are apt to slip to one side and give endless trouble.

But in ascending such mountains as Haku-san, where the ascent has to be made up the bed of a stream, or where one has to climb along the face of a rock with scarcely anything to rest upon, or in crossing over a talus of loose earth, it is necessary to wear *waraji* with *tabi* and without boots. The greater flexibility permitted to the foot enables one to hold on to ground from which boots would certainly slip away, in addition to which they allow one to walk in the water, or to wade from one side to the other of a stream without the necessity of wasting time by taking off and putting on boots. Climbing Haku-san and Tate-yama in this way, I found comparatively easy; the greatest difficulty was in descending, for the reason that the straw string which passes between the toes gets pressed against the skin, and seems as though it would cut right through. But, as boots are quite out of the question, nothing remains but to get used to the feeling.

I.—YATSU-GA-TAKE.

Early on the morning of the 16th of July we left Tôkiyô by *kuruma*, intending to reach Kawagoye the same evening. We rode along the Nakasendô as far as the new police station at Itabashi, which stands at the meeting of two roads, the Nakasendô and the Kawagoye-kaidô. Here, of course, we took the left road, which was much narrower than the other, and resembled an English lane bordered on either side with trees. As far as Akatsuka-mura, four *ri* from Nihombashi, this kind of road continued, after which for four *ri* more to Ôi, the road was lined with cryptomerias. At this place we heard of a shorter road which would permit us to get several *ri* further on our way without passing through Kawagoye, and after lunch we started for Kurosu, 3½ *ri* distant. We found the road very narrow, in many places little wider than an ordinary foot-path, and running for the greater part of the way through plantations of *nara*, *matsu*, etc. Acacia trees and seedlings seemed abundant, and in one place in the plantation I found a group of "Dutch pipes," Japanese *Oranda kiseru* (Aeginetia indica), growing almost hidden from sight. About half a *ri* before reaching Kurosu the road through the plantations opened out into fields planted with indigo, *sato-imo*, *satsuma-imo*, beans, etc., and we obtained a good view of the valley which lay between us and the hilly country beyond. Hitherto we had been traversing an elevated plateau, but a few *chô* from Kurosu the road very sharply descended to the village, which is situated on a bank of the Iruma-gawa. Kurosu is a small village, but appears cleaner and better kept than others through which we had passed. The next morning we started at 5.25, and a walk of about 10 *chô* brought us to the wide gravelly bed of the river, the water of which flowed in a beautifully limpid stream through a narrower channel, sufficiently wide, however, to require a boat to take us across. On the other side a narrow path along the bank of the river brought us to a small village, Sasai, where we diverged to the right along the road to Hannô. For nearly the whole distance, two *ri*, we passed through somewhat gloomy plantations, which opened out near Hannô into fields. The whole of this part of the road seemed singularly wanting in plant-life, a circumstance which, perhaps, gave the gloom to it. Hannô is a small, respect-

able looking village, but appears to be little visited, inasmuch as we searched in vain for a tea-house. About 10 *chô* beyond the village the road winds about among a series of small hills, and now rice-fields begin to appear from the greater abundance of water than in the plain over which we had come. Here two road separate: the winding road to the left is the one to Agano or Saka-ishi machi, and after following this for half a *ri* over the hills, we entered the valley of the Komagawa, flowing E. by S. This valley resembled, with its *sugi*-clad sides, many another valley in Japan, and presented many beautiful glimpses of wood and water. Flowers also were abundant, especially the lilies Funkia ovata, and Lilium aurantium, the latter of which was even oppressive with its fragrance. After entering this valley we had to cross the river ten times before we reached Saka-ishi-machi, three times by wading, six times over narrow planks stretched across, and finally, just before entering the town, over a well-built bridge. The old name of this place was Agano, but had been recently changed to Saka-ishi-machi. Here we learnt that horses could not go over the pass which lay between this and Ômiya, our resting place for the night, but that the baggage must be carried by oxen. After lunching, we again started and followed the road running along the banks of the Komagawa. About 2 *ri* from Agano we came to Saka-ishi-mura, from which the ascent of the Shômaru tôge may be said to commence. From this point the valley is very close and winding, well timbered, and supplying various kinds of wood. As we near the top of the pass, very fine views are obtained of the hills we entered in the morning and of the plain over which we passed between Tôkiyô and Kurosu. The highest point of the pass is about 1940 ft. above the sea. The descent on the other side was rather steep; the sides of the path were luxuriantly supplied with flowers, the Deinanthe bifida, with a flower like a fully developed Hydrangea, being especially noticeable, and in no other part of the country did I find it. At the foot of the descent we entered the valley of the Obukôkawa, following which we ultimately arrived at Ômiya. Before getting there, however, darkness overtook us, and as the road was very narrow, and in one or two places was reduced to a mere plank crossing the river, our progress was not very rapid. The brilliancy of the fire-flies was remarkable; on several occasions, indeed, it was almost impossible to resist the belief that

the light proceeded from a cottage door. At another part of the road we saw in the distance a peculiar, unnatural glare upon the dark *sugi* lining the banks, caused by the torches carried by villagers fishing in the bed of the stream. At Ômiya we were unable to find room in any except a second class hotel, the town appearing to be very full. Our baggage, which started from Saka-ishi-machi at 2 p. m., did not reach Ômiya until 2 a.m., having taken 13 hours for 7 *ri*.

Ômiya is a small town consisting of a principal street running S. S. W., and one or two at right angles. It is the centre of a silk district, and is on that account visited by Italians in search of cards. There are a few shops in which foreign goods, including wines and beer, are for sale. Looking down the main street, several hills are visible not very far away, Bukôzan, Urayama, Hashitate, and others. Immediately after leaving Ômiya we entered the valley of the Arakawa, the upper part of the river which runs through Tôkiyô under the name of the Todagawa, or Sumidagawa. Here it was flowing almost directly east. For about 1½ *ri* the road was quite level, running some distance from the right bank of the river through fields planted with beans, mulberry trees, etc.; but as we ascended the valley the road rose and continued along a terrace high above the river as far as where it has to be crossed to reach Niyekawa. From many points of this terrace, looking backwards, we had magnificent views of the valley, and one of our party who had been in Yamato said that it resembled the famous Yoshino, except that high mountains replaced the lower Yoshino-yama. Suddenly, when we came in sight of the white walls of the Niyekawa houses, the road descended very rapidly to the river, which we crossed in a boat with the help of a rope stretched from bank to bank, and then ascended as rapidly to Niyekawa, which is very beautifully situated, commanding a fine view of the valley. In the principal hotel, Isoda-ya, one of the rooms projects from the main part of the building, and here one can enjoy the beauty of the scenery, while the attention bestowed upon travellers is all that can be desired. We were shown a map of the district (Chichibu), a copy of which from Ômiya to the Jûmoji tôge, showing the branching of the road at Chichibu no Ochiai, is appended. After a good night's rest we started early, keeping to the left bank of the river, along the road which, having to cross the low spurs thrown out by the hills, rose and fell

frequently. The river winds in and out in a very picturesque way, and into the main gorge, which is very narrow, many smaller ones enter. Hills on either side, luxuriantly wooded to the top, rise to nearly a thousand feet. At this point the valley runs N. N. E., but a little way beyond it bends a second time nearly at right angles. Beyond the bend the character of the valley is bolder and the scenery more magnificent than anything I had hitherto seen in this country, and indeed will bear comparison with some parts of the famous Yosemité valley. At the point where the third bend occurs, a sharp, bold rock stands out like a sentinel, and, though on a smaller scale, recalls El Capitan in the Yosemité valley. On the opposite bank of the river another valley enters.

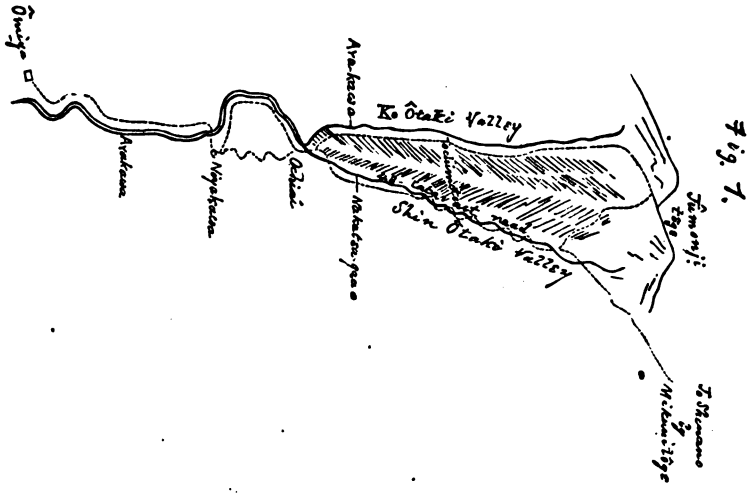


Fig. 7.

The highest part of the road before reaching Ochiai is where the path crosses the rock alluded to above, and at this elevation there are a few houses which bear the name of Oda-hara mura. In one or two of the houses were exposed for sale the antlers of the deer, and the smaller horns of the sheep-faced antelope, called the Kamoshika or Kurashishi. Beyond this point we turned to the right and descended into a more open valley, more cultivated, and much less picturesque. The descent was pretty rapid as far as the river, where there are a few houses, and a bridge leading to the opposite side, which, however, we did not cross, but continued to follow the path on the left bank of the stream as far as

Ochiai, a part of Ôtaki, 3 *ri* distant from Niyekawa. The name Ochiai is given to the place where two rivers meet, and as the same name is given to a village on the opposite side of the pass, this one is distinguished by the name Chichibu no Ochiai (Chichibu being the name of the district), while the other is called Shinshiu no Ochiai. A short distance above this village we came to a tributary of the Arakawa, about the same size, called Nakatsu-gawa. The road crosses this stream[1] and follows its right bank for a short distance before separating from the right and broader road, which keeps to the level of the river and is called "Shi-jû-hasse" (forty-eight shallow reaches), and, running up the valley Shin Ôtaki, finally passes over the Mikuni tôge into Shinshiu. The left branch of the road, which we took, rises pretty sharply to the top of the ridge, from which many very pretty views of the Shin Ôtaki valley, with its charming Swiss-looking cottages, are obtained. At the top of the ridge the path crosses from the Shin Ôtaki valley into the valley of the Arakawa again, here called the Ko Ôtaki valley, which we ascended to Tochimoto, whence the ascent of the Jûmonji tôge is made. The road in this valley is little more than a narrow ledge, running at varying elevations above the river, never less than 400 ft., but rising to 500 and 600 ft. It winds in and out of all the smaller side valleys, and is remarkably pretty all the way to Tochimoto. About a *ri* or a *ri* and a half from Ochiai we passed through a small village of about half a dozen houses called Ôkubo. From this 1½ *ri* more brought us to Tochimoto, where we rested in the house of Mr. Ômura, the principal farmer. During the whole of the last two days the luxuriance of plant life had been extraordinary, especially of the large Japanese lily, which here attains a size not seen elsewhere. On one plant I counted no less than 15 flowers on one stem.

Although we had reached Tochimoto quite early in the day, we were obliged to rest in order to commence the journey over the Jûmonji tôge early the next morning. We received somewhat alarming accounts of the difficulty of the pass, which fortunately proved to be exaggerated, but it is quite a common habit of country people to overestimate the

[1] In many maps, even in the one lately published by the Geographical bureau, the road to the Mikuni tôge is represented as leaving the other road before the Nakatsugawa is crossed.

difficulties to intending travellers. Shortly after leaving the village, a smaller road branched off on the left, which would lead into Kôshiu. The right path led by a steep and continuous ascent to a small shrine erected to twelve Buddhist deities, and called Jû-ni ten. This point is about 650 feet above Tochimoto. After a slight descent the path again ascended through quantities of bamboo and sword grass, wet with dew, by which in a very short time we were thoroughly soaked. After a steady climb of two hours from starting we arrived at a small shrine, said to be 1 *ri* 30 *chô* from Tochimoto, a rate of not more than 2·3 miles per hour. The road all the way was so narrow that neither horses nor oxen could have carried our luggage, so that we had to engage coolies to do so. A short distance from the shrine down the side of the slope there was a little water, which we were glad to drink, as we learnt that for the next 2½ *ri* we should come across none.

Beyond the shrine the road was tolerably level for a short distance, and seemed to lie along a long ridge separating the two valleys of Ôtaki, for we soon came to a pathway on the right, which came from Nakatsugawa. After a short descent the road again ascended to another flat ridge, and then rose again to the second highest point of the road, 5,100 feet above the sea, and 2,900 feet above Tochimoto. Just before reaching this point we caught a glimpse of Yatsu-ga-take W. N. W., and Asama-yama, 20° W. of N. Afterwards the road descended and emerged from under the trees, which hitherto had protected us from the burning sun, to a wide space where all the vegetation had been destroyed by fire, and from which we obtained a good view of the valley. The path was exceedingly narrow and ran along the face of a very steep slope, which descended below us for several thousand feet, and which recalled the rounding of Cape Horn on the Pacific Railroad. The Chichibu, Kôshiu, and Shinshiu ranges were all prominent, and gave the impression of great height. The gold hill of Matano-sawa was also pointed out to us. It is not yet worked on the large scale, but specimens of the ore were exhibited at the National Exhibition held at Uyeno, in 1877.

A little beyond this point the road had to pass round a group of very remarkable, rugged crags, and it then made a continuous

descent amongst trees till we reached a little glen where we found water, and here we lunched. This point is a little more than half way between Tochimoto and Shinshiu no Ochiai, being 3¾ *ri* from the former place, but nevertheless it had taken us 5¼ hours pretty steady, though not fast, walking. Near this spot I found the only specimen of Anemonopsis macrophylla obtained during the whole of the trip. The great abundance of plants on this pass was very striking, including the Cornus canadensis, two species of Thalictrum, Aquilegia glandulosa, Schrophularia alata, amongst the more noticeable, and the Monotropa uniflora, a beautiful, transparent little plant with a drooping head, which I have found on Nantaizan and on the Konsei tôge, where it was called *yuki-furi-sô* (snow fall grass).

After resting some time we again started commencing to climb immediately along the face of the side of the valley until we reached what must have been the upper end of the Ko Ôtaki valley, for the road now ran across a narrow ridge almost at right angles to its former direction, from which the two valleys, Shin Ôtaki and Ko Ôtaki, were seen to the right and left respectively. Having crossed this ridge, we had now come to the strip which separated the valley of the Nakatsugawa from that of the Chikumagawa, and for some distance the path led us along the Nakatsugawa side, and then after a long steep ascent we came to the highest point of the dividing ridge, a short distance on this side of the post marking the boundary line between the two provinces of Musashi and Shinshiu, or of the Saitama and Nagano prefectures.

The Jûmonji tôge is the middle one of three, the other two being the Mikuni tôge, between Shinshiu, Musashi, and Kôdzuke, and the Kôbushi tôge, which is at the point of meeting of Kôshiu, Musashi, and Shinshiu, and derives its name from the initial characters in the names of the three provinces, Kô-bu-shi. The Kôbushi-ga-take appeared to be of considerable height, probably between 7,000 and 8,000 feet. The highest point of the Jûmonji tôge is about 6,000 feet above sea-level.

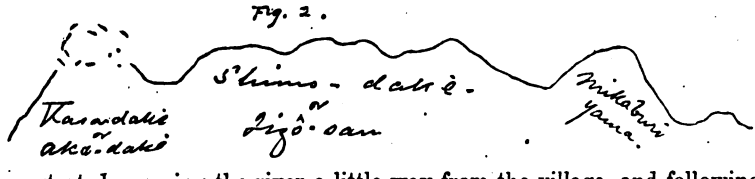
Here our guide, who had observed that we were collecting plants, made a sudden dive into the recesses of the forest, and after a short time returned triumphantly with a specimen, called Ôren, which is used as a drug, and the root of which has a very bitter taste. It is a species

of Coptis, probably brachypetala, and contains an alkaloid, the exact nature of which is uncertain. The root is said to be used as a vermifuge.

After passing the highest point, the path descended gradually for some distance through the same kind of scenery—a pine forest. Afterwards we descended very rapidly, the road at the lower path becoming stony and hard. From one point we saw Kôbushi-ga-take in a direction about 17° W. of S., after which we rapidly descended to the level of the Chikuma-gawa, which we first touched 1½ hours after leaving the summit, having descended nearly 1500 feet. We still continued to descend, keeping close to the river for 15 minutes more, till we came to a rude kind of bridge crossing the stream and also a small branch on the left bank, leading at once to the *hara*, which ran with a very gentle inclination as far as Ochiai. The valley ran directly east and west, and closing the western end, as it were, we saw the lofty and gloomy Yatsu-ga-take. The hills on either side of the valley were green, grassy slopes, very pleasant to look at, suggesting home scenes, but wanting the white cattle dotted here and there over them. The *hara*, hitherto uncultivated, is now being cut up into fields for the cultivation of buckwheat. It is a matter for wonder that the utilization of such a fertile spot should have been delayed, as the general opinion is that every available spot in the country is made use of. That it is a very fertile plain is rendered evident by the vast quantities of wild flowers growing on it—the luxuriance of plant life being as striking as on the pass, though it would be evident to the most casual observer that the characters of the two floras are very different, the one being an alpine, the other a valley flora. Most prominent were Epilobium spicatum, Platycodon grandiflorum, Funkia ovata, Dianthus superbus, Phyteuma japonicum, Veronica virginica, Geranium sibiricum, Hemerocallis various species, and numbers of Orchidaceæ. At the point where the road leaves the *hara*, and descends rapidly a few feet to the village of Ochiai, a most charming view of the valley in front is obtained, as agreeable as the sight of the promised land to the Jews of old. A little below the village the Chikuma-gawa is joined by the Adzusa-gawa, and the united waters flow through Shinshiu until they meet with the Sai-gawa, after which they flow as the Shinano-gawa, through Shinshiu and Echigo, and enter the sea at Niigata.

We stayed all night in the house of Mr. Tôdô, a farmer, there being neither *yado-ya* nor *cha-ya* in the village, as it is a road not often traversed by travellers. After making enquiries about Yatsu-ga-take we were told that Gongen-no-take was the highest peak and that it could be ascended from Umi-no-kuchi, and we therefore started early on the following morning, July 21st, for that place. Descending the valley, we passed through two small villages, Igura and Hara, and after about 4½ *ri* we came to a point where the valley appeared to be blocked by a range of low hills. The river, however, here joined by another stream, flowed round the north side of the hills, between them and the opposite side of the valley. The road ascended the hill, and then we found it to consist of an elevated plateau stretching for about a *ri*, and overlooking the valley in which Umi-no-kuchi lies. This village lies on one of the main roads between Shinano and Kôshiu. The Chikuma-gawa, after bending round the above mentioned plateau, emerges again a little way after the road leaves Umi-no-kuchi for Umijiri. In the former place we found the most complete ignorance prevailing concerning the roads or even the possibility of ascending the mountain, which could be well seen from part of the village. At last the oldest inhabitant of the village, on being applied to, said that it could be ascended from Umijiri, where a guide could be obtained. The accompanying sketch gives the outline of the range as seen from Umi-no-kuchi, where, however, the name Kasa-dake was given to the highest peak, which at the time was enveloped in mist. After lunch

Fig. 2.



we started, crossing the river a little way from the village, and following the road, a very good, broad and level one, along the left bank, through a very pleasant valley to Umijiri, 1 *ri* 12 *chô* distant. This is a remarkable little place, differing in appearance from the majority of Japanese villages, for the gable ends of the houses face the main street, and thus form a series of little streets branching off at right angles. At the head of the slight inclination which the town has is the Kuwaisha,

and that travellers can be accommodated is announced by a large board hanging at the entrance with the inscription "Hotel" on one side, and "Hostel" on the reverse. A tradition appears to exist that mosquitoes are unknown, and as a consequence nets are not forthcoming. But as in fact these little pests abound, during the night we suffered untold misery, a bad preparation for the climb we had before us on the morrow. We found that the highest peak was called Aka-dake, and was the same which was called Kasa-dake at Umi-no-kuchi. To ascend this it was necessary to go first to the summit of Mikaburi-yama, then to cross the ridge between that and the highest point—in fact to follow the outline of the sketch. We were provided with a guide who promised to conduct us from the summit of Aka-dake to Kami-no-hara, on the Suwa side of the range, which, however, would require us to camp out one night. Having divided our baggage, and sent the heavier portion to Kami-no-hara by the new road open to horses, we started early the next morning for the first stage, to Honzawa, where there are sulphur springs. Immediately on leaving the village, before crossing the bridge, the path diverged to the left from the main road. We ascended rapidly to the top of the slope, after which the rise became more gradual. At this point Asama was well seen due north, and Mikaburi-yama W. S. W. Rising continuously over a grassy plain, with many wild flowers, we passed two clumps of trees, which offered the only shelter from the sun, which even at this early hour was burning. Near the second group we found Trollius japonicus in full bloom, as well as the less conspicuous Metanarthecium luteo-viride. Having risen thus far along the face of one of the grassy spurs from the Yatsu-ga-take range, we now crossed over and ascended the opposite face, the one nearer to Mikaburi-yama. From this point we entered the pine region, and until we reached the summit of the pass, we were never out of it except for short intervals here and there. The road, however, still kept rising, with a single short descent to the stream just below the baths, until we reached Honzawa, which we did three hours and a half after starting. The baths are about 3,200 feet above Umijiri. In the wood we found many specimens of the beautiful little Pyrola rotundifolia, the flower of which always suggests the lily of the valley. Round the baths the rhododendrons were in bloom, besides which we found many other kinds of alpine plants.

Honzawa consists of a single house of two stories, roughly built, and partitioned off into rooms for the accommodation of visitors, of whom, however, there are very few. There is only one bath, situated about 1 *chô* above the house, and at the side several streams of cold water, charged with iron and sulphuric acid, rush past. The bath consists of a wooden tank, into which the hot sulphur water is admitted by a pipe. The source of the water is covered, so that we could not penetrate further in our investigation. The water smells of sulphuretted hydrogen, though not so strongly as the water of Kusatsu or of Yumoto (Nikkô). The temperature was 92·5° F. as it entered the tank, though whether it mixes with cold water before entering I could not ascertain. There appears, therefore, to be only one spring. Something having delayed our guide, it was a quarter to eleven before we were ready for a start. We then followed a tolerably wide, zig-zag path through a dense forest of pines for forty minutes, when we reached the summit of the pass between Umijiri and Kami-no-hara, on the Suwa side. No name having been given to this pass, I have called it the Mikaburi tôge throughout the paper, from the relation it bears to the mountain of that name. The height of the pass is about 1000 feet above Honzawa, and 7,400 ft. above the sea-level. We now turned sharply backwards to the left and entered a very dense, tangled growth of wood, through which we passed with great difficulty. The pines threw out their branches only a few feet above the ground, and we had either to creep underneath, or to climb over the obstruction. By and by we emerged from the wood and found ourselves at the base of the free part of the mountain. When seen from the baths, Mikaburi-yama presents the appearance of a volcanic cone which has been cut in two by some means and discloses its interior. There was no evidence of inclined strata, but it appeared to be built up of horizontal layers of a rock resembling basalt. The general colour of the broken part was red, but near the top a mass of a much darker brown colour was visible.

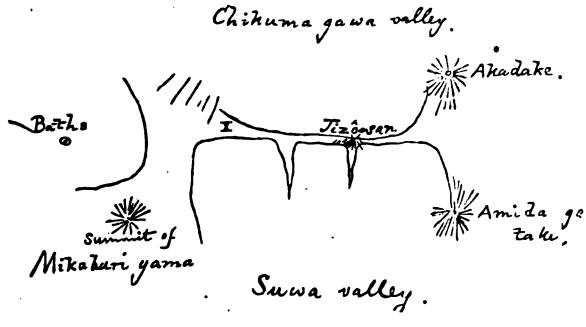
After leaving the pine wood our way lay up the side of the mountain, covered with a very low-growing kind of pine, called *ne-matsu*, which seemed to extend over the whole of that part, intermixed with a dwarfed rhododendron, at this time in flower. As the branches of this pine crept above the ground at a height of 6 inches to a foot, it

was very tedious and difficult to avoid getting entangled. Near the top of the mountain it disappeared, and the last part of the ascent was by the side of the broken edge, which is seen from the baths, up stony ground to the top, which we reached in 1½ hours after leaving Honzawa, and 1050 feet above Mikaburi-tôge. It is therefore 8,450 feet above the level of the sea.

From the summit we saw what appeared to be the other side, or part of the other side cut away, thus leaving only a ridge and the summit of the original mountain. The diagram Fig. 3 is a representation of the relation of the different points of this part of the range as they appeared from the summit and further along the ridge. In all the native maps I have examined, the relative positions of the peaks with the same name are different from those observed, but whether that is the fault of the map-maker, or whether the names of the peaks given to us by our guide were incorrect, is a point I am unable to decide. We then descended on the opposite side of the summit for a short distance to a hollow where we could be screened from the wind, marked X in the diagram, and after lunching we continued along the ridge in the direction of Aka-dake. From a point a little way along the ridge Fuji-san was seen in a direction about 15° E. of S., and the extreme end of Suwa lake 70° W. of N. Beyond this point the ridge became very narrow, at one point not more than two feet wide, whilst the sides sloped very rapidly down almost to the bottom of the valley, certainly for two or three thousand feet. At other places our progress was interrupted by gaps in the ridge, which necessitated a return to a point from which we could pass below by holding on to projecting rocks, or the stunted shrubs which were able to grow. At another of the more dangerous points the whole of the narrow path was covered with the creeping pine found on the lower part of Mikaburi-yama, and this I think was the worst piece of climbing we had, for as the branches hung over the edge of the rock, one could never be quite certain of stepping upon, and not over, the ridge. This part, I confess, I got over on hands and feet in fear and trembling, sincerely glad that we did not intend returning the same way, little thinking that circumstances would compel us to do so. That point passed, we came to the highest point of the ridge, which is called Jizô-san, and is about 230 ft. higher than the

summit of Mikaburi-yama, or about 8,680 ft. above the sea. For about fifteen minutes more we managed to progress in the direction of Aka-dake, but here the guide, after going a little in advance to examine the way, reported a great chasm ahead, which it would be quite impossible to cross, and which had been formed since the last time he ascended, three years ago. Although within 10 *chô* of the Aka-dake, which appeared towering high above us and running up to a very sharp peak, for apparently 500 or 600 ft. we were compelled to return. The difficulties in returning were even greater than before, for it had now begun to rain heavily, and to add to our troubles a very strong breeze had sprung up. Below us a thunder-storm was raging, which by and bye passed above us, and deafened us with one of the most violent peals of thunder I have ever heard or wish to hear. It seemed as though all the thin pointed rocks must fall and involve us in a common ruin.

Fig 3.



We succeeded in retraçing our steps without accident, but on emerging to the broader part of the ridge immediately below Mikaburi-yama, we missed our way, and descended some distance down on the Chikuma-gawa side. The mist, clearing a little, showed us the right direction, and after a stiff climb we found ourselves once more on the summit of Mikaburi-yama, after which we had thought all our troubles would have been over. But from this point, again, in descending we took the wrong road, and it was only when recourse was had to the compass, and after reascending to the summit, that we got the right direction. Our guide seemed to have lost all confidence in himself, and

from this point Mr. Nakazawa took the lead, and with the help of the magnet succeeded in bringing us back to the baths. We had taken three hours to descend from the summit of Mikaburi-yama through a drenching and severely cold rain, whereas the ascent occupied 15 minutes less than half that time.

Growing on the sides and summit of the mountain I observed dwarfed specimens of Dicentra pusilla, many kinds of ericaceous plants, and species of Aconitum and Anemone, but as I could not preserve specimens, I cannot be sure of the species.

The next morning we ascended the *tôge* once more, but continued this time along the newly formed road which is cut along the ridge through the pine forest. The soil was very soft and "springy," but the rough cut edges of the trees made walking very difficult. For some distance, until the wood was passed the descent was gradual, but beyond the wood-cutter's hut, as far as the first crossing of the stream, the road descended steeply. From this it ascended and descended till we reached the *hara*, beyond which the descent was continuous and gradual. We passed through one or two villages before reaching Kami-no-hara, which is said to be 6 *ri* from Honzawa, but is probably more. From Kami-no-hara the range of Yatsu-ga-take could be seen distinctly, and probably could be best ascended from that point; but, as the intervening slope is very long, two days would be required. It is not very easy to find out the correct names of the prominent peaks of the range. Sometimes the same name is applied to two peaks, as, for example, Gongen-no-take, and at others the same peak has two or more names, as in the case of Aka-dake, which at Umijiri is called Kasa-dake. The order in which they are seen from Kami-no-hara, proceeding from the north, is as follows: Tate-shima-yama, Mikaburi-yama, Yôko-dake, Aka-dake, and Amida-ga-take, all in Shinshiu, except the last, which we were told bordered on Kôshiu. Yôko-dake is probably another name for Jizô-san, the highest point of the ridge between Mikaburi and Aka-dake. This is a confirmation of the account given by our guide, and being from the opposite side of the range is of considerable weight.

From Kami-no-hara our road lay towards Fukushima on the Nakasendô, from which we intended to enter Hida. We crossed the

valley passing through Chino, a small town on the Kôshiu-kaidô, which lies on the river of the same name. This is one of the rivers running into lake Suwa, and after about twenty minute's walk we crossed a second river running into the lake. From this point the road ascended gradually through Miyagawa, in which we saw many silk-winding establishments, then through the village of Jingûji, in which there is a large temple called Suwa no jinja. After passing through the gate and along a long covered way, lined with many poems written on wood, a turn to the left led into a square courtyard, at one side of which was a large ornamental gate, adorned with *gohei*, and with a fine group of trees behind. This was the entrance proper to the temple, which was situated some distance up the mountain. Opposite the gate was a kind of shed, in which two large pictures, painted on wood, hung. One of these was remarkable for the enormous number of cranes represented in it, numbering over a thousand. It was 12 feet long and about 6 feet high, and was said to have been painted by Kanko, during the chronological period Kayei, 1848-54. The temple is said to be very old, though its age is unknown, and it underwent repairs during the period Tempô (1830-1844).

Beyond this village the road continued along the side of the low hills west of Suwa, with a view of the lake and of Yatsu-ga-take behind. Beyond Aruga the road ascended rapidly to the top of the low grassy hills, the highest point being about 850 feet above the lowest point of the valley, which was crossed at the second river, and was, therefore, a very little higher than the level of the lake. From the highest point we descended between grass-covered hills of the same kind into the valley of the Tenriu-gawa to Hiraide, on the Ina-kaidô leading to Takatô, one hour and 45 minutes after leaving the summit. From this point a fine view of Koma-ga-take in Shinshiu is obtained. Between Hiraide and Inabe, a town lower down the valley, the road is quite level and practicable for *kuruma*. The distance is said to be 4 *ri*, but is probably more than that, as our *kuruma* took three hours, going pretty fast most of the way. About half way between the two places we passed through Matsushima, which seems to be mainly filled with tea-houses. The ride down the valley was very delightful, as it is pretty open in the direction of its length, and at the same time we

got magnificent views of the two ranges of high mountains on either side, of the Kôshiu range including Koma-ga-take and Jizô-dake,[2] and of the south Shinshiu range, with the other Koma-ga-take and Kazegoshi-yama. Inabe is situated at the base of Shinshiu no Koma-ga-take towards the north, and the road to Fukushima crosses the range at the lowest point, directly to the north of this mountain.

After a good night's rest at the hotel of Toyo Seibei, we started early in the morning of the 25th July, and retracing our direction of the day before for a short distance, turned to the left and ascended the sloping plain which lies at the base of the Shinshiu range. The road over this was almost perfectly straight, and had the appearance of a well kept gravelled walk. After 1½ hours we came to the other side of the plain, where a sudden descent took us down to a small stream which flowed through a wild-looking valley. The upper part of the hills forming the sides of the valley were covered with green, but the lower parts were in most places much broken, revealing, by the jagged surfaces, the slaty character of the underlying rock. After ascending some distance over the stony road by the side of the stream, we diverged into a valley on the left, which was more wooded. A sharp ascent of 1½ hours from the stream when we first touched it brought us to the summit of the Gombei tôge, from which, as well as from many points during the ascent, we had splendid views of the Tenriu-gawa valley with the mountains on the opposite side, the Kôshiu range, and more to the north, Yatsu-ga-take.

On the other side of the pass the scenery was quite like that of many other passes, the bounding hills thickly covered with trees, with a mountain torrent flowing through the valley. After walking downwards for one hour and 40 minutes we came to a bridge over the stream, beyond which the path again ascended for about 30 minutes. From this we descended through a very narrow close valley, which continued to wind about, until finally it opened out into the broader valley of the Kiso-gawa, where we joined the Nakasendô, 12 *chô* from Miyanokoshi. From this to Fukushima, where we stayed all night, is a distance of 1 *ri* 30 *chô*. This is a curious town, built on both sides of the river,

[2] Kurôgôchi was given as the name of this mountain at one place near Inabe.

and having communication by means of two bridges, although the busy part of the town is situated on the left bank. Like all large towns, it possesses no good hotel; we stayed at the best, and found it very indifferent.

II. HAKU-SAN.

Leaving Fukushima we took the road along the right bank of the river for some distance, then turned to the right amongst low, wooded hills towards Kurozawa. A little beyond half-way we came to the entrance of a very beautiful glen, at the opening of which stood an immense crag of some silicious rock, approached by a bridge over the rivulet. It evidently was held sacred, from the fact that a platform had been built in front, and at various places round about images were placed. After about 20 minutes' walk through the glen we came to a more open and elevated part of the valley, near a small rest-house called Nakazawa, from which we had a magnificent view of the glen, with the dark, gloomy mass of the Shinshiu Koma-ga-take in the background. From this point the road kept ascending and winding till the *torii* facing Ontake-san, just above Kurozawa, was gained. Ontake lay 60° W. of N., and behind us was Shinshiu no Koma-ga-take 5° S. of E. Below us, the valley of Kurozawa appeared like a sort of amphitheatre, lined with dense cryptomerias, and from it we could almost trace the road up the mountain. From the village it lies nearly N. W., and is ascended during the late part of the summer by bands of pilgrims. There is a very comfortable hotel kept by Mr. Hara.

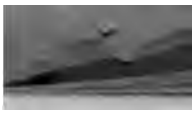
A short distance from Kurozawa two rivers, Ôdaki and Nishino, join, but from that point till they flow into the Kiso-gawa no name is given to the river. We wished to take the road into Hida by the Higesuri tôge, ascending the valley of the Ôdaki, the right stream, and to the left of Ontake, but no one seemed to be aware of the existence of such a pass. They spoke of a Takeguchi tôge, and we afterwards learnt that during the chronological period Tempô (1830-44) the road into Hida led over the Higesuri tôge, but that more recently this had been abandoned, and a better road made two valleys distant.

Leaving Kurozawa, we crossed the bridge over the Nishino-gawa

and ascended on the left bank of the Ôdaki, winding in and out, now ascending, now descending, by the road which ran at some height above the river, on the face of the hills. The scenery was by no means remarkable, differing in no respect from the common valley scenery of Japan. About 1½ or 2 *ri* from Kurozawa, in one of the small side valleys, there was a waterfall of some prettiness. The water flowed down a narrow channel between ledges of rock, and over a series of steps in the same rock. At a higher point in the same valley the water fell in a pretty cascade, although small, over the irregular face of the rock.

Our resting-place was Ôdaki, said to be three *ri* from Kurozawa, although probably the *ri* were of 50 *chô*. The valley in which it lies runs at that point nearly east and west. The village is situated on the hill some distance from, and above, the river, and appears to be the resort of numerous pilgrims who come in bands to ascend Ontake-san. It is said to be 7 *ri*, of 36 *chô*, from this village to the summit, while the distance from Kurozawa is less. The time for the great incursion of pilgrims had not yet arrived, but even now there were a great many in the tea-houses. They form themselves into companies, and, under the guidance of a leader, who is generally elected on account of the number of times he has made the pilgrimage, start on their journey on a particular day, and are expected to arrive at the various places on their way at fixed times. On that day the hotel keeper suspends, in a conspicuous place, one of the small flags seen hanging in front of the house, with the badge of the band expected, or already in the house. The name of the keeper of the principal hotel is Taki.

On the following morning we left Ôdaki to cross the Shindô into Mino. About 30 *chô* up the valley we passed the last village, Nikenya, to be found on this side of the pass. After walking along the valley, going up and down for an hour and a half, we descended to the bridge crossing the river a little above the place where it was joined by a tributary on the right bank. The bridge crossed over to the foot of a lofty crag, below which the water was of a brilliant green colour. Beyond the bridge the road followed the course of the tributary, and was very irregular and narrow. Sometimes it passed over rough and stony ground, sometimes along the face of a crag where a path had to



be made by placing trunks of trees lengthwise and binding them together and to the rock with the trailing stems of creepers, and sometimes over wet and clayey ground. After two hours' walking from Ôdaki, we came to the bank of a little streamlet, close to the place where it flowed into the river whose course we were following, and very picturesquely situated. Right opposite the point where the waters met rose a lofty crag, bare for a great distance up, and above, covered to the top, about 800 ft. high, with trees. By walking down to the larger river over the sandy and gravelly bed, and looking up the main stream, we got a most charming view of the river as it flowed through a very narrow gorge—rocks with parallel sides, quite destitute of vegetation near the water, but above with trees growing out and meeting above, forming a sort of tunnel, with the clear, green, deep water of the river at the bottom. At the upper end of this gorge indications of the rapids could just be seen, as the river makes a somewhat sudden bend on entering the gorge. A pathway leads to a small open part of the rocky wall on one side, and here could be seen the holes in the opposite wall, made for the purpose of fixing barriers across when it is desired to stop the progress of the wood which is floated down this stream.

After two hours' more climbing over the same kind of road as before, and always under the shade of the forest till just below the top, we reached the summit, 4,670 feet above the sea. Seven *chô* down on the other side is a small stream of good water, which made an excellent spot for lunch. From the summit the valley appeared to proceed in a general direction 80° W. of S., but the day was too misty to permit us to make out any of the mountains in front. The distance from the summit to the bridge at the foot of the pass on the Mino side was 49 *chô* and took us 1½ hours. The road on this side was rather steeper than on the Shinshiu side, and in many places was very difficult. We descended under the shade of trees, over a road which frequently seemed to vanish altogether, and we were not sorry to arrive at the bottom. The view from the bridge, however, well repaid us. Below it, flowed the lovely, green water of the Dôai-gawa, and looking towards the upper part of its course, immediately above the bridge, we saw it fall in a heavy, almost solid, mass over a portion of its bed about 15 ft. high, breaking into the whitest foam at its base. The channel then bent sharply to

the left, and about 10 or 20 feet below, again to the right at the point where it passed under the bridge. The sides of the channel were vertical and high, covered at the top with trees, and they served to cast into intense gloom the water near the bridge. The intense blackness of the water here gradually shaded off through the most lively green to the most brilliant white, as it approached the base of the fall, where it was illuminated by the sun's rays. Below the bridge the view was likewise striking and beautiful, but very different. The river widened and flowed in the shape of a crescent between hills at least 2,000 feet high, sharp, and thickly clad with trees. It then continued its course, and our road followed it at a considerable height, along a valley which, at first very narrow, after a distance of a *ri* or rather more, made a bend, and then opened out into a broad, well cultivated valley. The rocks in this district seemed to be much disintegrated, for we frequently passed over immense quantities which had fallen in a broken condition from the hills above. We remained all night at Chikechi, at the house of Mr. Miyada.

The road we had taken was a *shindô*, and has now entirely displaced the old Higesuri tôge, so that the Kochô at Ôdaki told us that he knew of no coolies acquainted with that way.

On the following morning we left Chikechi and walked down the valley for some distance, then turned to the right up a hill and passed through a pilgrims' village, in which all the houses appeared to have been quite recently built. From this the road led up over two hills, about 700 ft. above the village we started from, and after descending from the second one, we entered a broad valley, filled with rice-fields, and with a few houses scattered at considerable intervals. To the collection of houses in this valley, separated from one another often by half a mile, the name Kashimo-mura was given, and the river was called Kashimo-gawa. For about 1½ miles the road kept on the left bank, and then crossed over to the opposite side and ascended a low hill which formed the dividing line between Hida and Mino. At the summit of the pass stood a large red *torii*, through which on a clear day could be seen the sacred mountain of Haku-san. From the summit to the first house in Mimaino, the village at the foot of the pass on the Hida side, was said to be 10 *chô*, but the village was almost as straggling as that of

Kashimo. It contained no tea-houses, and we had a walk of nearly a *ri* before we came to Nojiri, where there is a very convenient resting place, kept by Mr. Imai.

A small stream flowed from the pass through Mimaino and Nojiri, and we continued to follow it on the right bank for about 3 miles, where it made a sudden bend to the right, and was joined by another stream from a valley on the left. Up to this point the scenery had been pretty and pleasing—crags standing out here and there, and crevices in the rocks filled with vegetation. But at the bend the character of the scenery changed:—from being merely pretty, it became grand and gloomy. The gorge of the river was very narrow; the sides inclined very steeply, and were covered with funereal-like cryptomerias with a luxuriance hardly to be imagined. The atmosphere seemed to become oppressive, and it was with a feeling of relief that, after about three-quarters of a mile, we emerged into the valley of the Masuda-gawa, an important river, flowing past nearly at right angles on its way to join the Kiso-gawa. From this point we passed up a broad valley bounded by moderately high hills, and filled with rice-fields, mulberry plantations, and cultivated fields—all indicating a pretty high degree of prosperity in this part of Hida. We saw no such signs in other parts of this province which we visited afterwards, but our observations were confined to the western boundary.

We passed through several good-sized villages, Nakaro—and at Gero we rested all night, and endeavoured to gain information about the proper route to take to ascend Haku-san, but we only succeeded in ascertaining the depth of ignorance in which the people were plunged. The next morning we came to a pretty large village, called Hagiwara, with two or three large streets, belonging to the federation Misato-mura. This is the name given to the collection of villages, of which I have mentioned three, Nakaro, Gero and Hagiwara, situated on the banks of the Masuda-gawa, and ruled by the local government seated in Gero. We afterwards came across two or three instances of the same arrangement, in which the *mura* seems to correspond to the ordinary word *gô*. There is no definite spot called Misato, but this is merely a name given to the collection of villages.

At Hagiwara we obtained coolies to carry our light baggage, the greater part being sent direct to Toyama through Takayama. Our intention was to cross over the hills between this place and the right branch of the Masuda-gawa, called the Maze-gawa: to ascend it as far as possible, and then to cross over from that valley to that of the Shira-kawa, descending which would bring us to the base of Haku-san, which we wished to ascend from the Hida side. The ignorance displayed by the inhabitants of this province, even when we got quite close to the mountain, was astonishing, and the accounts we received from those who professed to know the road were as alarming as they proved to be inaccurate. On the map of Hida in our possession a road was indicated as far as Kaware on the Maze-gawa; it then ceased, and left a gap between that village and Ôppara. In the same way, a gap was indicated between the valley of the Maze-gawa and that of the Shira-kawa, and we were at first told that it would be necessary to go round into Mino, and to reënter Hida at the head of the Shira-kawa. Fortunately, at Kaware we met a man who had gone as far as the upper part of the latter valley, and this proved that our undertaking was possible.

Starting from Hagiwara we crossed the river in a boat guided by means of a rope stretched across the stream, and making straight away from the river, we ascended the hill opposite the village. The road was steep and stony, but after an hour's walking we gained the summit, from which about 2 hours' walking down the valley on the other side brought us to Nakakiri, in the valley of the Maze-gawa. From here to Kuroishi is a little more than half a *ri*. Below the hill which separates this from the preceding village, Sugo, we passed a very fine temple belonging to the Ikkô-shû sect of Buddhists, called Keirinji. It was smaller, but decorated in the same style as the Honguwanji temples.

From Kuroishi to the best house in Kaware—that of Mr. Tôzô—is one *ri*, but we went half a *ri* further on, and were lodged in a small private house belonging to Mr. Yôhachi. All along this valley the mulberry trees, which seemed to be the principal thing grown, were cultivated in the old fashion, and were allowed to grow to large trees, thus giving the fields the appearance of orchards. The general effect was much more pleasing than that of the fields in Shinshiu and other

provinces where the modern method is followed of cutting down the trees to near the root, although it is said that in this way much finer leaves are obtained.

The road from Kaware followed the direction of the river for nearly one *ri* on the right bank, where it crossed to the other side over a rude wooden bridge. Thence it ascended and descended to the level of a tributary of the Maze-gawa. This we crossed, and then climbed the hills between it and the main river, which we touched, and crossed at a point right opposite Ôppara. The valley of the Maze-gawa is here much broader than above or below, and the ground seemed to be fairly well cultivated. The road between Kaware and Ôppara did not present any difficulties whatever, although it is not indicated on any of the maps of Hida. It was nothing more than a footpath, it is true: not broad enough for horses or cattle, but in this respect it did not differ from the majority of the roads which are marked. On the hills above Ôppara I found *Scrophularia alata* and a species of *Cucubalus*.

From Ôppara to Naradani the road was pretty good, and ascended on the right bank of the Maze-gawa. There being no tea-house in the village we were allowed to make use of a large temple called Yukokuji, like the one near Kuroishi, to lunch in. After lunch we started to cross over the hills between this and the upper part of the Shira-kawa valley, another part not marked in the map. We here left the main stream and ascended a tributary on the right bank, up a pretty steep ascent, often crossing and recrossing the stream, to the top of the first pass, 910 feet above Naradani. From this we descended under the shelter of trees all the way to the right bank of a small stream which flowed into the Shira-kawa. Beyond the stream the path again ascended to the top of the second pass (4,160 ft. above sea level), from which we obtained a fine view of the Shira-kawa valley, with Haku-san, partly veiled in mist, in a direction 30° W. of N. A descent of 15 *chô* between the two branches of the Shira-kawa, called on our left and right respectively the Tera-kawa and Miwo-kawa, brought us, after crossing the latter, to Kurodani, three *ri* from Naradani. Thus we had succeeded in traversing a second time, without any especial difficulty, a part of the road which the map-makers had evidently considered too uncertain to be indicated. A moderately good road along the right bank of the Shira-kawa brought us, after

passing many small villages united under the one government of Shoho-kawa-mura, to Iwase, 2½ *ri* down the valley. This term *mura* includes all the smaller divisions under the name of *kumi*. In most of these hamlets the thatched roofs are made very much inclined, to prevent snow from lying on them in winter. In the whole of Hida tea-houses appeared to be wanting, and indeed, in most of the places we travelled through, the ordinary houses were few and distant. We always found some difficulty in getting accommodation for the night, various excuses being offered, until the Kochô succeeded in persuading some one to take pity upon us. In none of the villages did the people seem to regard us as objects of curiosity, as had been the case in most other parts of Japan where few foreigners were seen, and in Iwase this was explained when we found one old man who professed the greatest astonishment on learning that we were not Japanese officials. I have never been in any other part of Japan where so much ignorance prevails on almost every subject. Being cut off by high mountain ranges on almost every side, the inhabitants hear no news, and I should think received no instruction of any sort, judging from the apparent scarcity of schools.

After leaving Iwase we crossed to the left bank of the river a little below the village, after which we continued down the valley, sometimes near, and sometimes away from the river. About a *ri* beyond Iwase we crossed one of the principal tributaries to the Shira-kawa. Three *ri* more, over a very irregular road, brought us to Miboro, the village from which we were to make the ascent of Haku-san. For the purpose of dividing our baggage once more, we rested for a short time at the house of Mr. Toyama, a rich farmer who has well kept rooms and who is willing to accommodate travellers. Although now reduced to the most moderate dimensions, with food for 4 days only, and sufficient covering to keep us warm, the Kochô said that the baggage would require 6 men, and as the same amount was afterwards carried by *one* Kaga man along a level road, some idea may be formed of the difficulty of the ascent from this side. The heavier part of the baggage was left in Miboro, as we intended to return there, and we took with us only what was absolutely necessary; but after the experience of the first afternoon, we could no longer wonder that the load of each man should be a light one. As the summit of the mountain is clear only in the

early morning, it is necessary to sleep at the Murodô, and to make the final ascent from that point, which is 9 *ri* from Miboro. But as we started too late to reach the Murodô in one day, we had to sleep in a small log cabin, 5 *ri* up the valley. The following day we could go no further than the Murodô, and we therefore had to provide for three nights' camping out.

We started from Miboro at 10.30 a.m. on the 31st July, and continued along the valley path for a short distance beyond the point where the Ôjira-kawa flows into the main stream; we then turned back at an acute angle and ascended by the left bank of this stream, which is of considerable size at this point. After about 45 minutes of somewhat difficult climbing, an earnest of what was to follow, we rested for lunch, and by 12 o'clock were again ready for a start. Beyond this we found many extremely difficult and dangerous places to get over, such as climbing up the face of a steep rock where the footing was almost *nil* supported only by the branch of a tree, or by the twining stem of a creeper. Two or three times, having to cross and recross the stream, we were able to do so with the help of stepping stones, but after the third time it had to be crossed by fording. This was neither an easy nor a safe task, on account of the depth and strength of the current. Indeed, oftentimes we should have found it impossible to cross without the assistance of our coolies, who, being wood-cutters, were accustomed to this kind of work. Up to the first fording I had been walking in boots with *waraji* underneath, but on exchanging them for *tabi* and *waraji* I found the latter so good for this kind of climbing, not only because of the ease with which one can wade though water, but also because the footing on smooth rocks is so much firmer, that I continued walking in them to the summit. The scenery all the way up was splendid; at one place where we had to ford the river three times in about ten minutes, the river flowed with great speed through a narrow gorge, the vertical sides of which were brilliantly tinted with the crimson colours of azaleas and the early autumn tints of some creeper. Having passed through the gorge we found, on coming to land once more, that the ravine opened out into a semicircle, with a smooth sandy beach, while everywhere about immense cryptomerias formed a fit setting for this little gem. A short distance beyond this we left the course of the river, and ascended

under trees, nor did we again see the river until 4½ *ri* from Miboro was reached, a point from which we saw one branch of this river falling over the face of a rock for about 350 feet, a splendid example of a fall. The rock was remarkable: it looked as though it had been sliced right through, the other half having been carried away, thus leaving in front of the fall an immense amphitheatre. The river had worn a deep channel in the upper part of the wall, and escaped through the bottom, just as Kegon no taki at Nikkô does. The fall can be seen only from the side of the valley, almost on a level with the top of the fall, and the point of observation also recalls the Nikkô waterfall. The face of the rock appeared to be formed of basaltic columns, sometimes vertical, sometimes bending into a funnel-like form, and at other times curved. The second (the right) branch of the river flows through a chasm on the opposite side of this rock, but forms no fall. The name of the waterfall is Shira-midzu no taki, and the most exaggerated reports of its height are current, but the height given above is probably as near the true height as the absence of accurate measurements will permit.

The path now bent round and descended to the level of the stream a short distance above the fall, and after crossing it, and continuing at right angles to the direction of its flow, we descended sharply to the level of the right branch, at a point where several hot sulphur springs arise. Here we found the rude log cabin in which we were to spend the night. It had been built by wood-cutters, and was provided with several hooks, hanging from the beam of the roof, for the purpose of supporting pans and kettles over the fire, which we very soon had blazing.

After enjoying a good night's rest, notwithstanding the hardness of the ground upon which we had to sleep, we continued our ascent the next morning, following the right branch of the Ôjira-kawa for about 1½ *ri*, jumping from stone to stone, or wading from one side to the other, but always in the bed of the stream, the water of which was intensely cold, slightly warmed here and there where a hot sulphur spring on the side sent its tiny rill into the main stream. At the end of the 1½ *ri* we came to some small solfataras on the left bank, from which steam and sulphuretted hydrogen were escaping, and a crystalline deposit, consisting of sulphur and some white body, was being formed on the surface.

Up to this point we had met with nothing that could be called really hard climbing, but now, instead of being able to jump from stone to stone, or wading from one side of the river to the other, we had to ascend the stream through the ice-cold water, just melted from the glaciers above, and to climb from stone to stone as the inclination of the valley became greater. Having ascended in this way about half a *ri* we came to the first glacier, or properly snow-slope. Being of a moderate inclination, this was comparatively a relief to us, and with the help of our iron-shod poles we ascended easily. This valley faced the E., and in crossing from it to the second valley, which faced N. E., we encountered some very steep places of loose earth and stones, which suggested remarks as to how they were to be descended. We ascended the second stretch of snow with some difficulty, as the inclination was greater, but our difficulties were much increased on leaving this and entering a smaller valley, where the inclination of the snow was about 30°. It was so steep that we could get scarcely any hold in spite of our spiked poles, and the only way I found it possible to make any progress was to drive down the pole into the snow, rest my right foot against it, and with the left scoop out a hole in the snow to rest upon, while I drew out the pole in order to drive it in higher up. This was a very laborious process, and heartily glad I was when we got to the upper part of this stretch, although the most dangerous part of the valley still lay before us. This was a narrow and steep gorge, apparently worn by weathering out of a lava stream, and well named *Jigoku dani*, which we might translate freely as "the valley of the shadow of death." While climbing this we had literally to hold on with hands and feet, and at one narrow place it was only possible for one to ascend at a time, the others keeping sheltered under a large rock just above them, from the shower of stones let loose by the one ascending. At first we did not appreciate the danger, but while waiting unconcernedly the ascent of the first coolie, we were suddenly started by his frantic shouts and by the sound of something falling. Instinctively creeping in towards the side and under the shadow of the rock, we were only just in time to avoid a large fragment of stone, which would have been certain death to any one in its way. After that experience we were more careful. The difficulties of that valley were, however, not yet

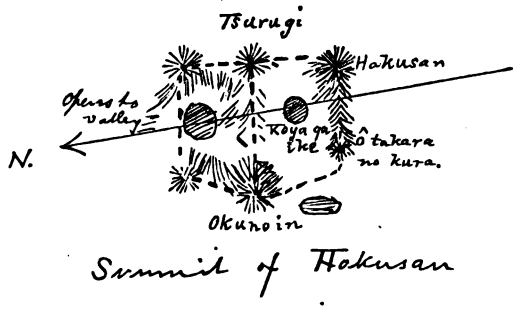
over, and one of the worst places was quite close to the top, where the earth was so loose, and the inclination so steep, that the danger of slipping was very great. The most active of the coolies managed to get over it, and these assisted the rest over with the help of a pole. This brought us to the upper edge of the ridge, from which we could see the summit of Haku-san rising high above us, while in other directions, an infinite number of hills rolled away to the horizon. From the Jigoku dani to the slope on the other side, at the base of Haku-san proper, was like passing from winter to summer. On this slope numerous flowers bloomed in all their native beauty, many which I had not hitherto found elsewhere; most noticeable of all the curious little *Fritillaria Kamschatensis*. From the edge of the ridge we descended to the stream, and following this down a little way we left it and ascended a branch stream to the edge of the slope from which the summit of Haku-san rises. After walking about half an hour over this, we reached the Murodô—a small wooden house inhabited during the summer for 30 or 40 days by a priest and hotel-keeper in one, who not only provides for the material wants of the pilgrims in the shape of rice, but also attends to the spiritual cravings of their nature by accompanying them to the summit, from which he points out the principal mountains to be seen.

The accommodation was of the rudest description, and decidedly inferior to that of the previous night at the hot springs, where there was, indeed, a separate hut for our coolies. The room in the Murodô was larger, and divided by a partition into two parts, but there was no difference as to the desirability of sleeping in either. Had the night not been so bitterly cold, it would have been pleasanter to sleep in the open air than in the hut, as we did, surrounded by our coolies, and by some pilgrims who had arrived from Mino, and suffocated by the smoke from the burning logs in the middle of the floor, which had no outlet but the too small door.

We were obliged to remain here the whole afternoon, although the summit was free from clouds during the greater part of the time, because the rest of the country was enveloped in a thick mist, and the growling of the thunder indicated that a storm was in progress somewhere. The next morning, rising before daylight, we were able to reach the summit before sunrise. The ascent from the hut is quite easy, and took us only

25 minutes. From the top a magnificent view of the Hida and Shinshiu ranges, with others further distant, was obtained. Beginning with the most northerly we saw Tate-yama, 58° E. of N.; Yari-ga-take, 20° N. of E.; Nori-kura, 8° S. of E.; Yatsu-ga-take and Kôshiu no Koma-ga-take very faint; On-take-san, 60° E. of S.; and lastly Shinshiu no Koma-ga-take very faint. Besides these there were the lower mountains immediately surrounding Haku-san, as Bes-san, its nearest neighbour. Haku-san is apparently part of the ridge of an old crater, of which there were probably two close together, the peaks called Tsurugi and Oku-no-in forming the remains of the other sides. All appear now to be composed of loose stones, lava of various kinds. Haku-san itself is the largest and highest, but the other points cannot be more than 50 to 100 feet lower. The relations of the peaks will be seen by reference to the diagram of the summit. The dotted lines indicate what were probably the two

Fig. 4.



Summit of Hakusan

craters, each with a lake at the bottom; there is a third smaller pool almost directly west of the Koya-ga-ike, but which is probably not a third crater. The crater of which Haku-san forms one side was probably the earliest, the north one having been formed afterwards, and the stream of lava which apparently flowed away to the north has been subsequently denuded. The water in Koya-ga-ike is of a dull colour, while that of the northern lake is of a beautiful turquoise, both perfectly tasteless.

At the west end of Haku-san is a striking mass of rock, which resembles the watch-tower of an old castle, and is called *Ôtakara-no-kura* or "the store-house of precious things."

The height of Haku-san is approximately 800 ft. above the Murodô, and 8,700 ft. above the sea; Koya-ga-ike is 350 ft., and the northern lake 400 ft. below the summit.

A descent of 25 minutes brought us again to the Murodô, from which after a slight refreshment we started to descend to Yumoto, on the Kaga side. The previous afternoon we had decided not to return to Miboro, as the descent of the Jigoku dani and the snow-slopes would be worse than the ascent, but to endeavour to reach Toyama by skirting the range between Hida and Kaga and Etchiu. This we afterwards found was not possible, the only way being to make for Kanazawa and from that place to get to Toyama by following the main road, the Hokurokudô. We sent word to the Kochô of Miboro to send our baggage to Toyama, where we found it on our arrival.

Leaving the Murodô the road continued for about a *ri* and a half down the slope of Haku-san, and was very steep and stony, for which kind of road and direction *tabi* and *waraji* are quite unsuitable. Beyond the foot of the mountain proper the road ran along a narrow spur, descending always, sometimes gently, sometimes down very steep and rugged parts. In many places the back of the spur was very narrow, and it was possible to look down into a deep valley on either side, that on our left being called Yanagi dani, and that on the right Yu no tani. Through each ran a river, the two streams uniting about 8 *chô* below Yumoto. In passing one point we could hear the roar of a waterfall, but on account of the thick mist which enveloped everything, we could see nothing of it. Our guide said that it was 40 *ken* (240 ft.) high.

About 1 *ri* before reaching Yumoto the road became very steep, and even the coolies slipped several times. For some distance the path was provided with cross-bars, just as on Nantai-zan. After four hours walking we arrived at Yumoto, situated on the right branch of the river, and said to be 4½ *ri* from the Murodô.

The village consists of a collection of hotels for the benefit of those who wish to bathe in the chalybeate waters of the place. We stopped a day and a half at the hotel of Mr. Yamada, where we were very

comfortable and well cared for. The village is completely shut in by densely wooded hills, and beyond what can be seen from the village itself, which is prettily situated, there is nothing to interest the traveller.

There is only one bath, which is divided by a railing into two parts, for men and women respectively. The water is muddy and of a greenish colour, whilst the towels which were hung out to dry had a reddish tint, proving the presence of a proto-salt of iron dissolved in the water, probably ferrous carbonate dissolved in carbonic acid. Besides this there is a spring the water of which is charged with carbonic acid, though not quite so strong as the Nassau waters. There were no signs of any sulphuretted hydrogen waters, which, taken into account with the very slight evidences of volcanic activity mentioned above, the hot springs and the solfataras, indicates that the volcanic forces are feeble in this mountain compared, for example, with Tate-yama or Asama-yama, or even Fuji-san.

During the winter the valley is said to be filled with snow to a depth of 15 or 20 ft., but about the 4th or 5th month it is sufficiently cleared to permit the village to be reinhabited.

On the 4th of August we descended the valley towards Ushikubi, 5 *ri* from Yumoto. The path was narrow and stony in places, and for some distance the scenery did not differ much from that round Yumoto. But about 3 *ri* down the valley, the left bank of the stream became bolder—lofty crags stood out, and vertical walls, covered in patches with cryptomerias, rose from the river to a great height. The whole of this part reminded me greatly of the Palisades of the Hudson. Below this the valley became less remarkable, till we arrived at Ushikubi, a village of considerable size, remarkable for the great height of the houses, and the great inclination of their roofs, indicating great depth of snow during the winter. We lunched at a very good hotel kept by Mr. Nagai, a wealthy farmer. About 2½ *ri* below Ushikubi we passed through Fukazimura, a little way beyond which is a remarkable bridge over the Tetori-gawa. It is very high above the water, and the foundations are very strongly built, apparently to permit the water to raise very high during the spring floods without preventing the passage over it.

The character of the lower part of the valley of the Tetori, the river we had been following, was that of a winding, rocky and wooded valley. In one or two places the views were striking, and different from those of most valleys, but on the whole the scenery was monotonous. After resting all night in poor quarters at Onnawara, we continued our way down the valley through fields of hemp and tobacco. We gradually descended on the level of the terrace at some height above the river, and the whole of the level part seemed well cultivated. Higher than this road we were on was another terrace, evidently an earlier bed of the river, which has now cut for itself a gorge through the later bed. Passing through Yoshino and Tsurugi we reached Kanazawa, also called Ôyama by the country people, where we saw many houses marked with the ominous strip of yellow paper, a sign of cholera being in the house. From Kanazawa we got *kuruma* to Tsubata, where we stayed all night at Nishijima-ya, and found ourselves well treated and very comfortable.

Just beyond Tsubata the road has to cross a range of low hills between Kaga and Etchiu. Now there is a *shindô*, along which *kuruma* can go with ease over the Amata tôge. The new road branches off from the Hokurokudô at Take-no-hashi, and rises very gradually. The greater part of the surface, however, is very rough, but if properly rolled would be an excellent road, upon which it would not be necessary for the *kuruma* coolies to go at a walking pace. It joins the main road at the beginning of Imaisurugi, four *ri* from Tsubata. Just at the point where the *shindô* meets the old road at right angles, we found an officer stationed with a minute squirt bottle filled with a solution of carbolic acid, with which he vainly endeavoured to disinfect travellers coming from the direction of Kanazawa. As our *kuruma* dashed round the corner of the road, the officer gave us a severe look, but seemed to come to the conclusion that we were free from infection, and so allowed us to pass without further molestation. Four *ri* eight *chô* beyond Imaisurugi we passed through Takawoka, which was just being rebuilt after a very extensive fire. To Kosugi the road is quite level and bordered with various trees, pine, etc. The road still continues level for 1½ *ri* more, winding in and about rice-fields, though it is not very evident why it should not have been made straight and shorter. About 1 *ri* from

Toyama the road ascends and crosses a group of hills, which divide the plain of Etchiu into two parts. Vehicles can easily go over the hills, and at the eastern side the road passes through a considerable cutting, from which the traveller has a magnificent view of the Hida, Shinshiu and Etchiu ranges. At the base of the hill the new road rejoins the old one, which is lined with pine as far as Toyama. This is a pretty large town, situated on both banks of the Jindzû-gawa, which we crossed by a bridge of boats. We stayed at Hirai-ya, in the upper part of the town. The next day it rained so heavily that we decided to improve our chance of having fine weather for the ascent of Tate-yama by waiting here for another day. We learnt that in Toyama there were from 30 to 40 cases of cholera per day, but we did not ascertain the percentage of deaths. The inhabitants endeavoured to propitiate the irate deities by hanging *shimenawa* all over the town. On each side of every street were hung festoons of straw ropes with *gohei* hanging from them, either of the usual shape, as they are found attached to sticks, or formed by making two parallel cuts in a rectangular sheet of paper, then bending the middle of the three strips backwards and attaching it to the rope, so that the two outer strips hang down like the prongs of a two-pronged fork. This form is never fixed to a stick, but is used only for the *shimenawa*. In addition to the lines of rope, in many streets there were also zigzags stretched from side to side. After being consecrated by the priest, the *shimenawa* are hung up, but nevertheless they did not seem to be very certain in their effects, for we noticed that some of the houses which were protected in this way had the dismal yellow papers hung up over them. In one street, indeed, almost every house was thus distinguished.

III. TATE-YAMA.

The morning of the 8th August proved to be dull, but as it was not raining we decided to start. We were unable to obtain horses to convey our luggage, even over the plain, the reason given by the *kuwaisha* being that all the available horses were employed in the coaches which run along this part of the Hokurokudô. We had to rest satisfied with this assurance, although the transport of the baggage by coolies caused us considerable delay.

To Kamidaki, at the south-east corner of the plain, the road ran through rice-fields, bordered in most cases with an edging of millet. All the way along we might have had a fine view of Tate-yama and the neighbouring mountains had it been clear, as at the beginning of our walk we could now and then catch glimpses of one or other of the peaks peeping above the clouds. But before we had reached the other side of the plain, just below the bluff which forms its boundary, clouds enveloped everything, and rain began to fall. Kamidaki is situated at the foot of the above mentioned bluff, and is a larger village than most of those in the mountainous regions we had hitherto passed through. From this village we at once ascended the hill, and found ourselves on a plateau which ran for nearly a *ri*, until the road descended towards the banks of the Jôguwanji-gawa, which it kept close to as far as Okada-mura. Near this I found a species of Lycoris, belonging to the family of the Amaryllidaceæ, which we were told was called in Japanese, "Ha mizu hana mizu," i.e. "the flowers do not see the leaves." From this village, which appeared to consist of one house only, we proceeded up the valley to Hara-mura. On account of the heavy rains the river was very much swollen, and the road in places had been washed away, so that we had to wade through the stream. The river bed is a very broad one, and there were a great many streams rushing down various parts of the bed with such velocity that the noise of the stones being carried down, grating against the bottom and against one another, was like the sound of distant cannonading. Above the river on either side were terraces which were the remains of an older bed of the river. It was over the terrace on the left bank that our road went, except when we had to descend in a few places to the level of the water. The only hills to be seen were the low ones on each side of the valley, and they were grassy—not at all wooded. About 3 *ri* from Kamidaki we crossed a tributary of the Jôguwanji-gawa, on the banks of which were numerous lime-kilns, indicating the nature of the rock of this neighbourhood. During all this time it continued to rain heavily, so that the road became little better than a water-course. Passing through Ômiya and Hongû, we arrived at Hara-mura, the rain having ceased, and there being every prospect of fine weather held out by the appearance of the sky. This promise was fulfilled in the early morning, though the fall in

the barometer during the night warned us to expect further bad weather. Leaving Hara-mura we ascended the gentle slope of the valley for about a *ri*, after which we entered what seemed, at the beginning, to be a beautiful wooded ravine. The path was tolerably good for a considerable distance (we had now entered upon the *shindô* between Etchiu and Shinshiu), running along the face of the steep hills on the left bank of the river. By and by, however, the heavy rains having broken down part of the original road, we were obliged sometimes to scramble up the bed of the river, and sometimes to make our way at a high elevation above the river, across masses of loose earth which had slipped down and left nothing but a mere talus of wet clay, which might at any time have given way under the additional pressure. Beyond this we had again to descend to the river, and make our way, first along the level sandy bed which had not yet become disintegrated, and afterwards from boulder to boulder. The scene became grand and savage in the extreme; huge boulders scattered about the bed—immense, bare crags rising sheer from the river, and the roaring, rushing stream, carrying down stones with a noise which sounded like thunder—all combined to impress one with the grandeur of the Dashi-wara-dani.

At the head of this valley two streams join, and our path led us for a very short distance up the side of the cliffs on the left bank of the stream. We soon descended rapidly to the bridge, or rather the place where it had been before it had been washed away. In its place a *kago no watashi* had been put up for the purpose of crossing the stream. Having heard most romantic descriptions of this apparatus, we were not a little excited on hearing, as we did at Hara-mura, that it would be necessary to cross in one of these baskets. The very name seemed to conjure up a picture of a narrow, lofty ravine, parallel-sided, with a rope stretched across high above the river, and a luckless individual swinging in the basket half-way across. The first sight of the actual circumstances quickly drove all the romance away. About 8 or 10 feet above the water a rope was stretched and fastened securely to two rocks, one on either side, and hanging from the rope was an ordinary mountain *kago*, with a rope from each end carried to the two banks of the river. At one side was a coolie, whose duty it was to pull the *kago* and its load across, which he did by a series of jerks

more resembling the jumping of a frog than any reasonable mode of progression. The changes of feeling of the person crossing were well marked in the varying expressions of his countenance. A look of confidence and excitement, assumed on entering, speedily changed to one of anxiety as he found himself hanging by a single rope over the boiling torrent, and being dragged over by jerks, while, on suddenly coming to land, as it were, against the smooth, rounded stone which had to serve as a landing place, an expression of pain, which escaped him for an instant, was immediately succeeded by one of an embarrassed reflection as to the possible means of getting out. It was not an easy nor a rapid process of getting ourselves and luggage across, but after spending about an hour we again continued our journey. We then climbed over the hill which separated us from the right stream, up the bed of which we ascended for some time, with views as grand and majestic as those in the Dashi-wara-dani, till we turned to the right and ascended the "road of 99 turnings." The Japanese use the numbers 99 and 48 to express a large number, in the same way as we are in the habit of using the number 1001. The road of the "forty-eight shallow-reaches" in Musashi is another instance of this.

We ascended to the summit, about 4,000 ft. above the sea, under trees, then after walking along the ridge for a short distance we descended to the plain, beyond which we crossed a tributary over a bridge very much out of repair, and after another ascent and descent we again entered the valley of the stream we left at the "road of 99 turnings." This valley consisted of a large, flat, open space covered with large boulders, the remains of the great earthquake of 1858, which broke away half of the mountain on one side. A walk across this plain brought us to the baths, which appear to be very much patronized. The accommodation is of the poorest kind, both as regards lodging and bathing. During the night the rain came down in torrents, and only ceased towards the morning. As the barometer, however, had risen during the night, we trusted to having finer weather, and so we decided to start, and, if necessary, wait at the Murodô for a fine day to ascend to the summit of Tate-yama. By the time our baggage was divided, part being sent on directly to Ômachi, the sky had cleared to a great extent. We then started, and crossing the river which flows through

the Dashi-wara-dani, made for the red-coloured precipitous hill to the west of the baths. After a walk of 5 or 10 minutes we reached the base, passing a dirty, yellowish-green pool of water, and we then climbed to the top of this hill, up the bed of a water course, which required considerable exertion. Half an hour's hard climbing in this way brought us to a level space at the top of this ridge, after crossing which we came to the foot of the steepest bit of climbing we were to meet with. This was the rocky bed of a series of cascades, and if there had been much water, which fortunately for us there was not, it would have been impossible to make the ascent. At it was, the constant climbing from stone to stone, up an average inclination of 45°, was very arduous. As the sky had cleared, the views we got on looking back were worth all the trouble of the ascent. After rising for about an hour in this way, we came to a ridge which permitted us to rest, and from which we had a magnificent view of the valleys leading into the valley of the baths. The streams flowing through each of these looked like wavy, silver threads, and, contrasted with the green foliage around, presented a picture of extreme beauty. Above this point, instead of having to climb from stone to stone, we had to climb up an earthy, slippery, slope with the assistance of trees and branches which hung over us. Above this, again, just before reaching the top of this part of the ascent, we came to an almost vertical rock, with a few projecting ledges, by which we were enabled to climb up, using hands and feet. Progression in boots in such places would be quite impossible: it is difficult enough wearing *waraji*, which possess a considerable degree of flexibility. From the upper part of this ascent can be seen Tengu-bira, Washi-ga-dake, and, up the Yu-dani, a deep lake called Kari-komi-ga-ike. Into this lake the presiding deity of Tate-yama is said to have driven all the hurtful animals of the district, in the same way as a gardener throws decayed leaves, etc., into a pit, and so the same name was given to the lake. In Yu-dani there is another lake of hot sulphur water, called Magodani. On the right we saw the lake which we passed last night just before reaching the baths. It was called Dashi-wara-no-ike.

From the top of this ridge we descended for a considerable distance by a muddy and boggy path, till we emerged on a grassy plain, about the middle of which we came upon the regular route from Ashikuraji.

Following this road we again ascended the rocky beds of several small mountain streams, until we reached a large, flat plate of stone, supported vertically, and called Kagami-no-iwa (mirror rock). Beyond the stone we passed up the boulder-covered slope of the mountain, and past several stretches of snow, till we reached the Murodô. Since the time we came to the usual road, the rain had fallen heavily, and a dense mist prevented our seeing anything whatever.

The Murodô was in much worse condition than that on Haku-san: the draughts had much freer access to the inside, the mats were much coarser, and the annoyance from the wood fire was quite as great.

Late in the afternoon it cleared up sufficiently to permit us to visit the remarkable solfataras, situated in a valley about 6 *chô* distant from the hut. Turning to the left on leaving the Murodô, we passed between two lakes, one shallow, with sloping sides, the other, on the left, with vertical sides, and water of an intensely green colour, and probably, as Dr. Naumann thinks, an old crater. Further on we came to the brow of a hill from which, on a clear day, a bird's-eye view of the solfataras can be obtained. Descending the stony side of the hill, we reached the soft, and sometimes muddy, bottom of the valley, which is broken up by two or three mounds, of a pale yellow colour at a distance, but which when seen nearer were found to be composed of a mixture of sulphur and a white rock, probably a decomposed granite. From several points at the lower part of these mounds issue jets of steam, mixed with sulphuretted hydrogen, which deposit sulphur upon the sides of the opening. From one of these openings the steam issued with a terrific noise, and with sufficient force to carry lumps of the deposited sulphur 10 to 15 feet away. The hissing sound caused by the number of steam jets suggested a large engineering establishment in full operation. In another part of the same valley we saw a large circular pit, in which a yellowish mud was kept boiling and being projected to a height of 8 or 10 feet, falling back again into the pit, or flowing over through a channel which carried it off to a lower part of the valley. At the other end of the valley was a much larger mud geyser, but the colour of the mud was different, as it appeared to contain less sulphur; it is said that some years ago a violent eruption of this geyser took place. Mr. Nakazawa, who visited

these solfataras in 1877, said that everything was much more violent now than formerly. Scattered about were very small ponds of boiling water, through which gas escaped, and in some of them it was curious to notice the form that the mud at the bottom took as the gas bubbled through. The gas rose at first through a small hole, which widened at the top, so that the bottom looked as a range of mountains would do if they were hollow and could be seen from the inside.

The experience we had of the Murodô fully confirms the account published in the *Japan Herald* of 1878. It is, without exception, the worst we have met with, and it is remarkable that, although a larger number of pilgrims ascend this mountain than ascend Haku-san, the accommodation is so much worse. Not that the Murodô on Haku-san is by any means a desirable habitation, but there are degrees of badness, and the latter had the merit of being comparatively wind-proof, and at least of being provided with doors. In the hut in which we spent the night before ascending Tate-yama, the door had to be closed with matting, there being no other means at hand of keeping out the bitterly cold wind. A night spent in any of these huts is neither a good preparation for the fatigues of the coming ascent, nor a relief from those of the past.

Rising early, we felt ourselves repaid for the exertions made to ascend to the Murodô, by seeing the atmosphere quite clear about the summit, and all the peaks appearing grandly through the moonlit air. Accompanied by our guide we crossed the short stretch of level ground between the hut and the base of the mountain, for a short distance over the snow. The ascent was pretty direct, rising tolerably easily at first, but after passing the first shrine, 860 ft. above the Murodô, on a level with the ridge which connects Jôdo-san with the Gohonsha, the highest peak, the ascent became difficult. From the second shrine (1050 ft. above the Murodô) we had good view of the mountains in the neighborhood of the Japan Sea, with the promontory of Noto stretching away N. W., and here we got our first view of Fuji-san from this region. Continuing the ascent we came upon the ridge, from which the actual summit rises very sharply, crowned with a very picturesque temple. Seeing the peak from the ridge one can understand how it received the name Tate-yama (Standing peak), for it rises head and shoulders above

any of the others, and serves the mariner as a beacon. The ascent, not including stoppages, took us exactly one hour; whereas from the Murodô to the summit of Haku-san we were not more than 25 minutes, over a much easier road. Magnificent as the view from Haku-san was, it was far surpassed by that obtained from the summit of this mountain, and we were extremely fortunate in having a morning so clear that every point could be distinguished with the greatest ease—mountain after mountain rolling away in the distance until they ended in the beautifully formed cone of Fuji-san, on the opposite coast of Japan.

Tate-yama is the name given to a range of mountains, all of which are very high, and appear to be above 9,000 ft. above the sea. The range runs nearly north and south, except the extreme point south, where the direction changes to S. W. This point is called Jôdosan, and it is connected with the Gohonsha by a low ridge running nearly N. E. Beyond the latter the range runs nearly N., and includes the high, sharp peak called Ônanji, then two lower rounded mountains, Manago-dake and Bes-san, and is terminated at the north end by a high, striking, rocky point, called Tsurugi-dake. The number of mountains to be distinguished from the summit on a clear day is, perhaps, greater than from any other mountain in Japan, unless it be Yari-ga-take in Hida. Looking to the east we see on the extreme left, Miyôkon-san and Miyôgi-san in Echigo, then the Shinshiu Togakushi-san, the Nantai-zan of Chiusenji, Yone-yama in Echigo, Asama-yama, with its cloud of smoke distinctly visible. Then toward the south we see the range of Yatsu-ga-take, with its isolated peak, Tateshima-yama; beyond this the simple cone of Fuji-san, and the two Koma-ga-take, in Kôshi and Shinshiu. To the south of these again we find Ontake-san in Shinshiu, Yari-ga-take, Norikura, and the pointed Kasa-ga-dake, all in Hida; nearer to us is Yakushi-dake, and almost south-west is Haku-san. This is the last of the circle of mountains, and now we come to the plains of Kaga and Etchiu, the latter watered by the distinctly visible rivers Jindzû-gawa, Jôguwanji-gawa, Kamichi-gawa, and nearly north of us, the Kurobe-gawa. All seem to enter the sea.

On the summit there are no lakes such as we found on Haku-san, nor other evidences of the existence of the crater, except the generally

volcanic nature of the rocks. All traces have probably been washed away, leaving only harder rocks standing up isolated. The height of the highest peak (Gohonsha) is about 9,250 ft. above the sea.

While we were still on the summit a number of pilgrims came up, and although there was scarcely room for us to remain with any feeling of safety, it was too good an opportunity of seeing a mountain service to be lost. After some time had been spent in conversation with the priest, in which the sum of *yo riô* was frequently mentioned, the priest sank on his knees in front of the shrine, with all the pilgrims kneeling around him, and offered up a prayer in which the names Tate-yama and Ishikawa occurred many times, after which he clapped his hands and a general cry of "*namu amida butsu*" followed, and when the prayer was ended the most devout said "*arigatô*." The priest then rose from his knees and addressed his audience, giving them an account of Izanami and Izanagi, after which he brought out various relics—a spear, a sword, various coins, and a mirror—all of which were received with exclamations of astonishment and intense satisfaction. Rice and *sake* were next distributed, upon which the pilgrims departed, having paid their pence beforehand. The whole ceremony seems to have been a curious mixture of Buddhism and Shintôism—the people at various times interposing with "*namu amida*," which they mumbled till it sounded like "na-am."

After having spent about two hours on the summit we descended as far as the lowest shrine, by the same road that we took in ascending, but at this point, instead of turning to the right in the direction of the Murodô, we crossed over the ridge of Jôdosan, and entered the valley called Gozen-dani, which faced nearly S. E. We were informed that this was the shortest way to Kurobe, which was said to be 2½ *ri* distant. Descending first a slope covered with heather, with here and there large boulders scattered about, we noticed a bright yellow ranunculus (R. Acris) and specimens of *Anemone narcissiflora* growing; beyond this slope we came to a talus of loose stones, the descent of which was difficult and dangerous, for the stones being quite loose, one might slip and receive a severe fall, or, if below, he might receive a stone from above. Having got over this difficulty we had next some fatiguing work, especially when wearing *waraji*, descending the rocky

bed of a very cold mountain stream, succeeded by a descent down a gentle slope of snow, and again down the river bed till we came to where a second valley, coming from the left of Jôdo-san, joined the Gozen-dani. This part had taken us two hours, and we had not yet got half way to Kurobe. From this, we ascended the tributary stream for some distance, then diverged to the left up a smaller bed, so as to cross over the ridge separating us from the valley of the Zoragoye, where we expected to join the *shindô*. The ascent was very steep, resembling the ascent to the Murodô from the Tate-yama baths; when near the top we turned away to the left, and entered a jungle, which, at first level, began to descend rapidly. Climbing through the branches of the creeping *hari noki*, down fern slopes which treacherously concealed the rough, sharp stones forming the surface of the hill, and having to force our way through thick masses of bamboo (*ne dake*), all the while descending, and having to use the greatest care to avoid bruises from the sharp stones, formed one of the most difficult tasks of our journey. After two hours of this trying work—trying both to constitution and temper—we reached the level of the stream, only to find the *shindô*, which we had expected to strike here, far away above us on the opposite side of the valley. As our guides said that we could not get down the river, because, as it neared the Kurobe-gawa it became deep and could not be forded, we were obliged to ascend the river for about half an hour, till we came to the bridge where the *shindô* crosses the river. From this point we ascended to the top of the Kariyasu-zaka in twenty minutes, and forty-five minutes more down a zigzag path brought us to the clean and nice looking little hotel at Kurobe. We had taken 6¾ hours to go a distance said to be 2½ *ri*, the time including half an hour for lunch. This village contains only this house and another on the opposite side of the river, which is here crossed by a very solidly built bridge. The second house is of a much lower class. Here we obtained sheets showing the direction of the *shindô*, according to which a large number of villages exist along the road. At present, however, they are each represented by one, or at most two, log cabins, unoccupied except in one or two instances.

Starting about 6 o'clock the next morning, we crossed over the

bridge, and passing the second house, made our way under trees up one of the side valleys opening on the right bank of the Kurobe-gawa, the road keeping close to the river for a considerable distance, and in pretty good condition, except in one or two places. After walking for one hour we came to where the valley opened into a semicircle of huge crags, rising sheer from the ground for about 1,000 ft. Beyond this we passed for three-quarters of an hour through a narrow glen to the left, and at the end of that time we came to the commencement of the steepest part of the ascent, from which the dip between the two mountains on either side of the pass could be seen. An hour's hard climbing up a zigzag path, with alder trees growing round about, brought us to the summit, exactly 2¾ hours after leaving Kurobe. The barometer indicated a height of 7,750 feet above sea level. From the summit a fine view of the deep valleys, with which the whole of this region is intersected, was obtained. With the exception of Fuji-san, which appeared S. E. through a dip in two of the nearer hills, and the ranges of Yatsu-ga-take and Koma-ga-take, no prominent mountains are visible: the view is confined to the hills of the range, all about the same height. The mountains on the N. W. of the pass hid Tate-yama, and to the east nothing could be seen. We were almost as much favoured with fine weather as up Tate-yama, although in this case there was not such an extensive view to be obtained, although in its way it was equally magnificent.

The distances along this route are by no means accurately known, but considering the rate at which we walked and the time taken (2¾ hours), the summit is probably 2½ *ri* from Kurobe. Our coolies took 4 hours. After waiting for them, we started on our descent at 10 o'clock, and joined a new zigzag path which had been lately made to replace the old one, which was destroyed in many places. The descent was very sharp, and we felt impelled to jump down at a much more rapid pace than we adopted in ascending, although it was a painful experience from the sharp edges presented by the freshly broken stone. After one hour and a half of this the road become less steep, though still stony and difficult, until just before reaching Shirazawa, where it was comparatively level. The scenery of this valley was very fine; here and there we saw patches of snow in the bed of the valley below

us and in some of the side ravines, though in no place were we obliged to touch snow. At one point in crossing over a side stream we passed between snow, above and below us, but at that point where the path crossed the stream the snow had disappeared entirely, and in other parts nothing but a mere shell was left, with deep caverns beneath, and the water flowing at the bottom. On continuing along the path, we rose a little and saw that the surface was so completely covered with debris as entirely to hide the snow.

After walking for 2¾ hours from the summit we reached Shirazawa, which consists of a single hut, in which an old man was living, though the place boasts of no accommodation for travellers except a few basins and plates. It is tolerably clean, however, and would be better than the Murodô to sleep in, if any one thought of commencing the ascent of the Harinoki tôge from that point.

The small quantity of snow found in the valley this year compared with last year (1878), from the description given by those who visited it then, is probably partly owing to the very mild winter, although it is true that we were about three weeks later in the year; but some friends, who ascended from Noguchi this year, about a fortnight or three weeks earlier than we visited it, speak of less snow than was found by those who visited it last year. On the Shinshiu side of the pass there were no signs of any violent floods, for the road which had been destroyed was in the upper part of the valley, high above the stream, and the injury was most likely caused by a landslip. It also appeared that the violent rain we had had in To-yama, and as far as the Murodô, which had converted the waters on the Etchiu side into raging torrents, had been quite local.

After lunching at Shirazawa, which is about 3 *ri* from the summit, we left for Ômachi, three *ri* further down the valley. The road now became easy, and crossed a gently sloping plain covered with trees, chiefly *nara*, past the *Yama-no-kami*, where a *torii* was erected, and covered with numerous spear heads, offerings to the god of the mountain. After a walk of 1 hour 25 minutes, we passed through the upper part of Noguchi, and 15 minutes afterwards, on the opposite side of the stream, through the lower part, where the principal hotels are. Crossing over the plain for three-quarters of an hour we came to

Ômachi, a long straight town, with a rather broad, somewhat deep, gutter running through the main street. At one place we noticed a water wheel, which the stream was employed to turn.

From Ômachi we proposed to cross over the hills to Uyeda, by a little known route, instead of taking the more usual road by Ikeda. Passing out of the lower end of the town, we very soon turned off to the left from the broader road which passed down the valley, and after ascending amongst a series of small hills, came to the highest point between Ômachi and Ai. From this place we obtained a fine view of the mountains, 65° E. of S., probably the range running northwards from Asama-yama. We had now left the Hida-Etchiu-Shinshiu range behind us, and except occasional glimpses from the higher points, we saw them no more. A winding road, by the side of a small stream flowing through a narrow, picturesque valley, with, in one part, a series of magnificent crags, and in another some of those very sharply pointed hills delighted in by Japanese artists, landed us after two hours more at Ai, a small village situated near the place where this stream enters the Sai-gawa. Here we were compelled to wait for 1½ hours before the coolies who were to carry our baggage were ready. As we were anxious, if possible, to reach Uyeda that night, we chafed under the delay, and under the fact that the road was so hilly that only coolies could carry our baggage. We left Ai at 11.10 and walked for a short distance down by the left bank of the Sai-gawa, through a most remarkable and beautiful gorge. The rocks of the region were sedimentary, and the whole had been tilted to a pretty high angle, after which the softer beds had been denuded, leaving the harder ones of conglomerate standing out as vertical plates. Trees growing in the nooks and crevices of the rocks made the whole scene very striking and beautiful.

Near the place where the river bends to the north-west, the road to Uyeda left the broader road to Senkôji (or Nagano, as it is sometimes called) and crossed to the other side of the river, then turned up a small side valley, and ascended the hill on its right bank. After about 1 hour we reached the top of a kind of ridge, from which we could see that the rocks of the different valleys round about were of the same character as those just described, and it gave a marked peculiarity to

the view. The highest point of this was called Garimeki-tôge, but probably that name is given to the whole of the pass between Ai and Niuma. After going along the ridge, we soon came to a part from which we could look down into one of the hollows of the pass, for there were altogether three passes, and which presented the appearance of a funnel more than any other object. The edges of the projecting plates of rock had a direction converging towards the bottom of the valley, so that they appeared like lines radiating from a centre, and thus produced the funnel like form. A small rivulet flowed through the bottom of the valley, and escaped between two ribs of the funnel, the opening not being visible from above. Trees grew in all the clefts of the rocks, and served to fill up the intervals between the ribs.

From the bottom, the road again rose rapidly to the top of the second pass, called Naka-tôge, and again immediately descended to the bottom of a valley of more ordinary character. A third time it rose, this time a little higher than either of the others, but to this pass the coolies could give no name. The road then passed down through a narrow, almost parallel-sided valley, the bottom of which had been converted into a rice field, but this soon opened out into the larger valley in which Niuma lies. The river flows over the exposed edges of the beds which form the valley, and at the lower end escapes through an aperture in one of the vertical plates which, otherwise, appear to close the valley completely.

From Niuma a fairly good and level road runs for about 1 *ri*, to where it joins the main road from Matsumoto to Zenkôji, which, like most of the main roads in this region, was in a wonderfully good state, as it had been renewed for the journey of the Mikado last year. After about three-quarters of a *ri* along this road we came to Honjô, where we rested, and at 6.30 p.m. we started for our last pass before reaching Uyeda. Immediately on leaving the village, we turned to the left, and ascended the Sora-tôge, which, although rather long, is by no means steep. Before reaching the top it was quite dark, and impossible to ascertain the character of the scenery. From the summit we had three hours good walking before reaching Urano, where we remained all night.

As nothing of any difficulty now lay between us and Tôkiyô, we were anxious to return as rapidly as possible, which we did by *kuruma*

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ST OF PLANTS COLLECTED.

	LOCALITIES.
.. ..	Shômaru tôge and elsewhere. Common.
.. ..	Jûmonji tôge.
.. ..	" "
.. ..	Mikaburi hara. Jôdo-san, Tate-yama.
.. ..	Jûmonji tôge.
.. ..	Jôdosan, Tate-yama.
.. ..	Mikaburi hara.
.. ..	Jûmonji tôge.
.. ..	" "
.. ..	" "
.. ..	Yatsu-ga take. Harinoki tôge.
.. ..	Haku-san, Tate-yama, and Harinoki tôge.
.. ..	Jûmonji tôge.
.. ..	Yatsu-ga-take.
.. ..	Between Ochiai and Haramura, Chikuma-gawa valley.
.. ..	Yatsu-ga-take.
.. ..	Ochiai hara, and elsewhere. Common.
.. ..	Harinoki tôge.
ponicus	Near Ōppara (Hida). Also near Ai (Shinshiu).
.. ..	Jûmonji tôge.
.. ..	Ochiai (Shinshiu).
.. ..	Ochiai (Shinshiu). Common in valley-plains.
.. ..	Jûmonji tôge. Mikaburi tôge.

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from Urano along the Hokurokudô and Nakasendô to Matsuida, where we hired a coach to Takasaki, and from that town took another, which brought us to Tôkiyô, after 32½ hours continuous travelling. Both roads have been described before, and so I am relieved from entering into any particulars concerning the road from Urano to Tôkiyô, except, perhaps, to refer to the splendid road over the Usui-tôge, which has recently been made. It is quite possible now to go the whole way in a wheeled vehicle, and I did so for the most part of the way, only excepting a short portion near Sakamoto, which I thought to be rather too steep to be quite safe.

TABLE II.—LIST OF PLANTS COLLECTED.

	NAME OF PLANT.	LOCALITIES.
	RANUNCULACEÆ.	
1.	Clematis (?) sp.	Shômaru tôge and elsewhere. Common.
2.	Thalictrum simplex	Jûmonji tôge.
3.	T. tuberiferum..	" "
4.	Anemone narcissiflora	Mikaburi hara. Jôdo-san, Tate-yama.
5.	Trautvetteria palmata	Jûmonji tôge.
6.	Ranunculus acris	Jôdosan, Tate-yama.
7.	Trollius japonicus	Mikaburi hara.
8.	Coptis brachypetala	Jûmonji tôge.
9.	Aquilegia glandulosa	" "
10.	Anemonopsis macrophylla	" "
11.	Aconitum Fischeri	Yatsu-ga take. Harinoki tôge.
12.	Cimicifuga simplex..	Haku-san, Tate-yama, and Harinoki tôge.
	PAPAVERACEÆ.	
13.	Pteridophyllum racemosum	Jûmonji tôge.
14.	Dicentra pusilla	Yatsu-ga-take.
	CRUCIFERÆ.	
15.	Arabis (?) sp.	Between Ochiai and Haramura, Chikuma-gawa valley.
	VIOLACEÆ.	
16.	Viola biflora	Yatsu-ga-take.
	CARYOPHYLLACEÆ.	
17.	Dianthus superbus	Ochiai hara, and elsewhere. Common.
18.	D. (?) sp.	Harinoki tôge.
19.	Cucubalus bacciferus var. Japonicus	Near Ōppara (Hida). Also near Ai (Shinshiu).
20.	Lychnis miqueliana	Jûmonji tôge.
	HYPERICINEÆ.	
21.	Hypericum Ascyron	Ochiai (Shinshiu).
	GERANIACEÆ.	
22.	Geranium sibiricum	Ochiai (Shinshiu). Common in valley-plains.
23.	Impatiens noli-tangere	Jûmonji tôge. Mikaburi tôge.

TABLE II.—LIST OF PLANTS COLLECTED *(Continued)*.

NAME OF PLANT.	LOCALITIES.
LEGUMINOSÆ.	
24. Lathyrus Tanakæ	Jûmonji tôge.
ROSACEÆ.	
25. Spiræa callosa	" "
26. Fragaria vesca	Ôjira-kawa valley, at the side of snow-slopes.
27. Potentilla chinensis	Ochiai (Shinshiu).
28. Agrimonia viscidula, var. Japon ..	" "
SAXIFRAGACEÆ.	
29. Astilbe chinensis, var. Japonica ..	Ochiai (Shinshiu).
30. Saxifraga cortusæfolia	Side of gorge on Shindô between Shinshiu and Mino. Also on Haku-san.
31. S. tellimoides	Mikaburi tôge, Haku-san, and Tate-yama.
32. S. fusca	Harinoki tôge.
33. Tiarella polyphylla	Jûmonji tôge.
34. Parnassia palustris	Tate-yama baths and Murodô.
35. P. foliosa	Valley between Yumoto and Ushikubi, Kaga.
36. Deinanthe bifida	Shômaru tôge.
CRASSULACEÆ.	
37. Sedum aizoon	Ochiai (Shinshiu).
LYTHRARIEÆ.	
38. Lythrum virgatum	Ushikubi (Kaga).
ONAGRARIÆ.	
39. Epilobium affine	Ochiai.
40. E. spicatum	"
41. Circæa alpina	Jûmonji tôge.
UMBELLIFERÆ.	
42. Bupleurum sachalinense	Jûmonji tôge.
CORNACEÆ.	
43. Cornus canadensis	Jûmonji, Mikaburi tôge, Haku-san, Tate-yama.
RUBIACEÆ.	
44. Galium obovatum	Harinoki tôge.
VALERIANEÆ.	
45. Patrinia scabiosæfolia	Shindô between Shinshiu and Mino.
46. P. palmata	Jûmonji tôge.
COMPOSITÆ.	
47. Senecio Krameri	Jûmonji tôge.
48. S. nikoensis	Ochiai (Shinshiu).
49. S. flammens	" "
50. Pertya scandens	Jûmonji tôge.
CAMPANULACEÆ.	
51. Campanula punctata	Ochiai (Shinshiu) and other places.
52. Platycodon grandiflorum	Ochiai (Shinshiu), and other plains.
53. Phyteuma Japonicum	Ochiai (Musashi), Umi-no-kuchi, and other places.
54. Adenophora verticillata.	Many places. Common.
ERICACEÆ.	
55. Gaultheria pyroloides	Yatsu-ga-take.

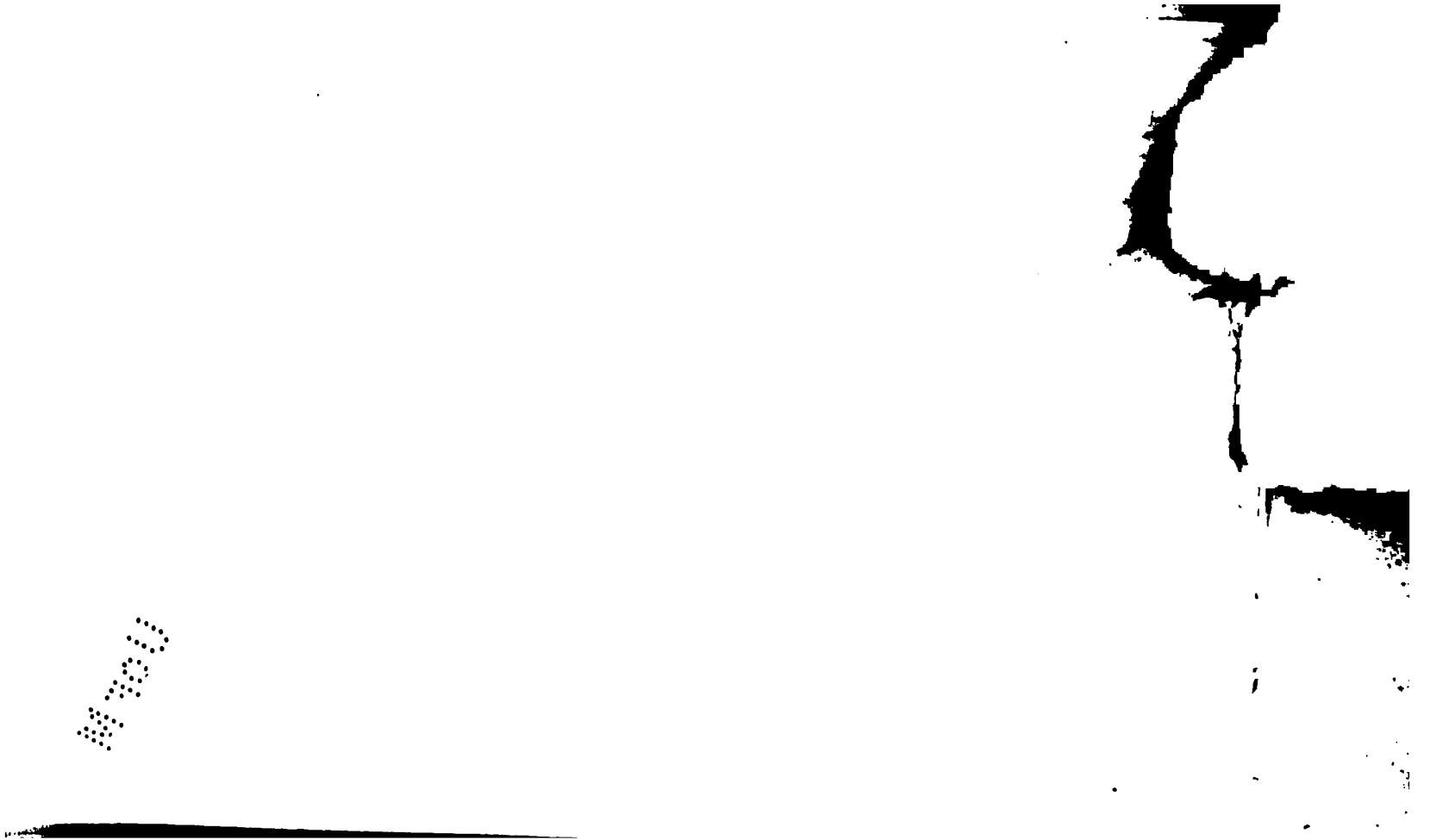
TABLE II.—LIST OF PLANTS COLLECTED *(Continued)*.

	NAME OF PLANT.	LOCALITIES.
56.	Phyllodoce taxifolia	Murodô (Haku-san).
57.	Tripetaleia paniculata	Mikaburi tôge. Jûmonji tôge.
58.	T. bracteata	Harinoki tôge.
59.	Pyrola rotundifolia	Mikaburi tôge.
60.	Vaccinium (?)sp.	Gozen dani (Tate-yama). Mikaburi tôge.
61.	Rhododendron (?) sp.	Shindô from Ôdaki to Chikechi. Yatsu-ga-take.
62.	Monotropa uniflora..	Jûmonji tôge.
	DIAPENSIACEÆ.	
63.	Diapensia lapponica	Yatsu-ga-take.
64.	Schizocodon soldanelloides	Murodô on Haku-san.
	PRIMULACEÆ.	
65.	Primula (?)sp.	Jûmonji tôge, Haku-san, and Tateyama.
66.	" "	Kaware.
67.	Lysimachia vulgaris	Ochiai (Shinshiu), and in other plains.
68.	Trientalis europæa	Jûmonji tôge; Mikaburi tôge, near Honzawa.
	STYRACACEÆ.	
69.	Pterostyrax corymbosum	Ochiai (Shinshiu).
	ASCLEPIADEÆ.	
70.	Endotropis caudata..	Ochiai (Shinshiu).
	GENTIANACEÆ.	
71.	Gentiana thunbergii	Murodô on Haku-san
72.	G. (?) sp.	Murodô on Tate-yama.
73.	Ophelia bimaculata..	Harinoki tôge.
74.	Villarsia crista-galli..	Murodô on Haku-san and Tate-yama. Also on tôge between Kaware and Ôppara (Hida).
	CYRTANDRACEÆ.	
75.	Conandron ramondioides	Yatsu-ga-take.
	BORAGINEÆ.	
76.	Lithospermum erythrorhizon ..	Shindô between Ôdaki and Chikechi.
77.	Omphalodes Krameri	Jûmonji tôge.
	SCHROPHULARIACEÆ.	
78.	Schrophularia alata..	Jûmonji tôge. Also tôge between Naradani and Kurodani, Hida.
79.	Veronica virginica	Ochiai (Shinshiu), and other plains.
80.	V. cana	Jûmonji tôge.
81.	V. (?) sp...	Shindô between Ôdaki and Chikechi.
82.	Euphrasia officinalis	Yumoto (Tate-yama).
83.	Pedicularis japonica..	Mikaburi tôge.
84.	P. resupinata..	Murodô (Tate-yama). Jûmonji tôge.
85.	Melampyrum laxum	Jûmonji tôge.
	OROBANCHACEÆ.	
86.	Aeginetia indica	In a plantation near Kurosu (Musashi).
	LABIATEÆ.	
87.	Thymus serpyllum	Shindô between Shinshiu and Mino.
88.	Dracocephalum Ruyschiana	Ochiai (Shinshiu).
	PHYTOLACCACEÆ.	
89.	Phytolacca acinosa	Hannô (Musashi).

TABLE II.—LIST OF PLANTS COLLECTED *(Continued)*.

	NAME OF PLANT.	LOCALITIES.
	POLYGONACEÆ.	
90.	Polygonum bistorta..	Murodô on Haku-san.
91.	P. thunbergii..	Valley of the Arakawa, near Ochiai (Musashi).
92.	P. suffultum	Jûmonji tôge.
	EUPHORBIACEÆ.	
93.	Euphorbia lasiocaula	Shindô between Shinshiu and Mino.
	ORCHIDACEÆ.	
94.	Gymnadenia (?) sp.	Jûmonji tôge.
95.	Platanthera hologlottis	Ochiai (Shinshiu). Jûmonji tôge.
96.	P. japonica..	"
97.	P. oreades	" also Murodô on Hakusan.
98.	Habenaria sp. (?)	Shindô between Shinshiu and Mino.
99.	Epipactis gigantea	Shômaru tôge.
100.	(?) Ephippianthus sachalinensis ..	Jûmonji tôge.
	IRIDACEÆ.	
101.	Pardanthus chinensis	Mikaburi tôge.
	AMARYLLIDACEÆ.	
102.	Lycoris radiata..	Okada mura (Etchiu).
	DIOSCOREÆ.	
103.	Dioscorea sativa	Mikaburi tôge and elsewhere.
	SMILACEÆ.	
104.	Smilacina bifolia	Alder plantation between Tate-yama and Kurobe.
	LILIACEÆ.	
105.	Fritillaria kamschatcensis	Murodô on Haku-san.
106.	Lilium medeoloides..	Jûmonji tôge.
107.	Tricyrtis latifolia	Gombei tôge, Kurozawa, and Garimeki tôge.
	OPHIOPOGONEÆ.	
108.	Ophiopogon spicatus	Ochiai (Chichibu).
	MELANTHACEÆ.	
109.	Metanarthecium luteoviride	Mikaburi no hara.
110.	Veratrum nigrum	Near Ôppara in Hida.
111.	V. album	Murodô on Haku-san and Tate-yama, and on Harinoki tôge.
112.	V. stamineum	
	JUNCACEÆ.	
113.	Juncus sp. (?)	Jôdo san; Tate-yama.
	LYCOPODIACEÆ.	
114.	Lycopodium clavatum	Mikaburi tôge.

NOTE.—The above list does not include the whole of the species seen in flower; such plants as are commonly distributed over the country were not collected. This will explain the shortness of the lists of the natural orders, Leguminosæ, Rosaceæ, and Compositæ, which, however, were represented by large numbers of well-known flowers.



DISCUSSION.

Mr. W. N. Whitney said: "Haku-san, I believe, now belongs to the province of Kaga, but was formerly claimed by the *daimiyô* of the three provinces on whose borders it was situated. The dispute, I have heard, was settled at last by the government at Yedo, to whom the *daimiyô* of Kaga applied. It is said that upon presenting himself at the Shôgun's court, the representative of Mayeda said, 'I have come concerning the matter of the ownership of Haku-san in Kaga'—upon which he was told, that if Haku-san was in Kaga there could be no dispute about it. In the public gardens of Kanazawa there is a well or pond called Kanazawa-no-ike, in which a dragon is supposed to dwell, and which is said to be connected with Haku-san by a subterranean passage some eighteen *ri* in length. These gardens are well worth a visit, as much money has been spent on them by the former *daimiyô* of Kaga, who were considered the wealthiest in Japan. They are situated near the end of a ridge called Ôyama (big mountain) and are noted for their beautiful scenery. In the gardens are two lakes, a waterfall and a fountain, all supplied with water brought along the ridge from the Saigawa, some four miles above the town. The view from here is fine indeed, especially in spring, when the plum and cherry trees are in bloom, and the mountains are capped with snow. On one side a broad plain stretches out to the sea, on the other tall peaks touch the sky, while away to the north a lake, low foot-hills, and the high mountains of Etchiu and Noto complete the view. The temple called Daijôji, the castle and Mukô-yama, are all places of interest. From the top of Mukô-yama, the view is a grand one, especially at sunset, as the sun is sinking into the sea, when the plain from the town below, the castle and the mountains in the back-ground assume a peculiarly weird aspect. Just outside of the town, near the road to the shore, lies the famous Benkei-ishi, a huge boulder said to have been drawn thither by Benkei, the robber-priest of Hiyeizan. It weighs many tons, and is quite unlike any rock within miles of its present resting place. Not far from here is Kahoku, a lake covering many thousand acres, which a certain Zenya Gombei wished to fill up, that he might use the land for agricultural purposes. In order to destroy the *namazu* that undermined the banks, he caused large quantities of lime to be thrown into the lake. This, however, killed the other fishes too, which, being collected and sold by the fishermen to the poor farmers about, caused many deaths. For this Zenya was thrown into prison, and

his property confiscated: shortly after he died and his body was crucified at Kanaiwa. This Zenya was the richest man in Japan, and it is said was the first to establish foreign trade at Takeshima."

Mr. W. G. Dixon said that he could add little to the information contained in Professor Atkinson's exhaustive paper. Quite recently, however, he had, through the kindness of a Japanese gentleman, learned a few facts that might be interesting. Very well-deserved praise had been given to Dashiwara-dani. It formed an example of savage grandeur such as was only occasionally met with in this land of picturesque, but generally soft, scenery. To the magnificent castellated cliffs that towered above this glen, the suggestive name of Oni-ga-shiro (The Devil's Castle) had been given. In regard to the view from the Hari-no-ki-tôge, it should be mentioned that the jagged peak that serrated the middle of the southern horizon was Yari-ga-take, a mountain remarkable both on account of its extreme steepness and from the fact that it had been found, by a foreign gentleman who had ascended it, to reach a height of about 10,000 feet, thus rivalling Ontake-san for the second place in altitude among the mountains of Japan. The darkly wooded eminence behind which Yari-ga-take was from the pass seen to rise, was vested with a certain tragic interest. It was related that about the time of Taikô, a warrior named Sasa Narimasa, while fleeing from Shinshiu to avoid the pursuit of his enemies, here perished of hunger, with all his family. The speaker had also been informed that Ômachi was only 10 *ri* distant from Shinonai on the Hokurokudô, a place about 10 *ri* on the Zenkôji side of Uyeda. The route from Ômachi to Uyeda, viâ this place, might form an alternative to that described in the paper as having been followed between these towns.

Mr. Marshall remarked that last summer he had, in company with the Chairman, himself gone over parts of the ground just described. The *shindô* which leads from Ômachi in Shinshiu to Hara in Etchiu, was, only three weeks before Messrs. Atkinson and Dixon traversed it, covered in many places with snow. Before reaching the summit of Hari-no-ki-tôge from Ômachi, they had to cross 10 or 11 great snow-fields, and this, added to the enormous height to be ascended and the fact that the road was greatly torn up by last winter's storms, made the ascent both laborious and dangerous.

Mr. Marshall desired to add a few remarks about a village in this region called Arimine. He said: "A writer in the Yokohama *Herald* mentioned that last year he had heard at the hot springs at the base of Tate-yama that this village was inhabited by a very exclusive people, who did not even trade with other people and were ignorant of the use of money; who intermarried only amongst themselves and in consequence had great similarity of features and limited intellect. At Higashi Mozumi, in the valley of the Takara-gawa, we were further told by an apparently intelligent miner who had visited Arimine with a friend, that the people were really very peculiar, would not speak to strangers or give them food, were evidently exceedingly stupid, and had great similarity of features. In order

to visit this village we left the valley of the Takara-gawa at Domura (1 *ri* from Higashi Mozumi) and thence travelled up the valley of the Atotsu-gawa. The following is the route from Domura :—

	Ri.
Domura	0
Nakamura	1
Sakomura	0½
Odawa	0½
Arimine..	3½

At Sakomura we procured a guide. From Odawa there is nothing but a woodman's track to the solitary village, and as torrents require frequently to be crossed and for short distances ascended, it would be quite impossible to go without a guide. The track is through a grand mountain forest. Unfortunately it thunders and rains every day in this region, and this somewhat mars what is otherwise a very interesting trip. The village consists of 13 houses, scattered over a beautiful green plateau, and must be, I think, about 5,000 feet above the sea level. The people we found to be just like those of other villages. They were very polite, but, as we expected, said that they could not afford to give us any food. However, on my assuring the head man that we had brought food with us, he welcomed us into his house. Each house seemed to have one horse at least, and from the good treatment they apparently received and the number of pictures of horses we saw at the *miya* and in the houses, we concluded that the horse must be here either a pet animal or held in great veneration. Our host told us that they had no bedding, and so we had to sleep with coarse matting both about and below us and with a lump of wood for a pillow. Before we started next morning all the people came on our invitation in groups to see us—men, women, and children, and we could detect neither signs of idiocy nor striking similarity of features. We also learned very decidedly that they knew both how to trade and the use of money. Their principal export is the bark of trees. They grow all their own food and live principally on *hiye* (a kind of millet) and coarse vegetables. They also drank coarse tea and smoked very inferior tobacco. The bowls of their tobacco pipes were much larger than the ordinary Japanese pipes, and were similar to those used by the Coreans in the late embassy. Although very poor they all seemed quite happy, and although we were the only foreigners they had seen, even the children showed no signs of fear and accepted some biscuit we gave them."

PROPOSED ARRANGEMENT OF THE KOREAN ALPHABET.

By W. G. Aston.

[*Read November 11th, 1879.*]

The order in which the letters of the Korean alphabet are arranged in the existing authorities is extremely irregular and inconvenient, and I believe that the arrangement suggested below, which is based on an examination of the system on which they appear to have been constructed, will be found more advantageous in several respects. At this early stage of the study of Korean, it may still be time to introduce a more systematic order without prejudice to the convenience of other students of this language, who can hardly have yet committed themselves to the arrangement hitherto adopted. A vocabulary of Korean on which I am now engaged will be arranged according to this system.

KOREAN ALPHABET.

VOWELS.

ㅏ	ㅑ	ㅓ	ㅕ	ㅗ	ㅛ
a,	ya,	ŭ,	yŭ,	o,	yo.
ㅜ	ㅠ	ㅣ	ㅡ	ㆍ	
u,	yu,	i,	eu,	ă.	

(Bases ㅣ ㅡ ㆍ)

DIPHTHONGS.

ㅐ ㅖ ㅚ

è, é, è.

CONSONANTS.

Labials	ㅂ	ㅍ	ㅁ	(Base ㅁ)
	p,	ph,	m.	
Dentals	ㄷ	ㅌ	ㄴ ㄹ	(Base ㄴ)
	t,	th,	n, l.	
Palatals	ㅈ	ㅊ	ㅅ	(Base ㅅ)
	ch,	chh,	s.	
Gutturals	ㄱ		ㅋ	(Base ㄱ)
	k,		kh.	
Laryngeals (?)	ㆆ		ㅇ	(Base ㅇ)
	h,		ng final.	

The above arrangement makes it clear that the inventor of the alphabet had classified the sounds of the language according to the organs of speech by which they are formed. A common element (which I have called the base) is traceable through all the letters of each class,

the Labial base being a square, the Dental base an angle opening to the right and upward, and so on. The inventor has subdivided, rightly, as I think, into two classes those letters which are usually included in the common term gutturals.

The above pronunciation is merely provisional.

ㅇ at the beginning of a word represents the spiritus lenis, and is not reckoned a letter. Possibly it might be preferable to do so, writing it thus ᵓ.

The Diphthongs follow the order of the letters of which they are composed.

NOTES ON STONE IMPLEMENTS FROM OTARU AND HAKODATE, WITH A FEW GENERAL REMARKS ON THE PREHISTORIC REMAINS OF JAPAN.

By John Milne.

[*Read November 11, 1879.*]

PART I.—PREHISTORIC REMAINS FROM OTARU AND HAKODATE.

In a paper on the "Stone Age in Japan," read before the British Association in 1879, I made reference to several localities in Yezo, where stone implements and other relics which are of interest to those studying the early history of this country had been found. From what was there stated it would seem that stone implements and other spoor of the aboriginal inhabitants of Japan are to be found from Kiushiu in the south, to Yezo in the north. From an examination of the collections which I have made, together with several which have been made by others, it would appear that the relics are most abundant in the north. Should this conclusion be a true one, it is a fact of considerable importance. In the paper to which I have just referred, I endeavoured to shew that the people who left this spoor were the Ainos. Now the Ainos still inhabit Yezo, and we know from history that at one time they probably covered Nipon, and they were driven back towards the north by the Japanese advancing from the south. In fact their history and present geographical position is such that we appear to be safe in assuming that the Ainos have lived for a longer period in Yezo than they have in Nipon. This, then,

being the case, in those parts of Japan which have only been temporarily inhabited by the Ainos and also have only been inhabited for a comparatively short period, we ought not to expect to find so many traces of their former presence as we should in a country which had been inhabited for a longer period, by large numbers, and by a people who continued to manufacture stone implements until quite recent times. Generally speaking, it would seem that the number of relics of a barbarous age in any civilized country, will, amongst other conditions, very largely depend upon the number of years which separate that age from its present civilized condition. A conclusion which we therefore come to is, that the distribution of stone implements in Japan accords with what we should anticipate from our knowledge of the distribution of the Ainos, and therefore I think we may accept this distribution, amongst the other evidence which I have previously adduced, as being another proof that these relics are the spoor of Ainos, and not of a pre-Aino people as has been suggested.

The following notes on the collections which I made this year at Otaru and Hakodate, when contrasted with the remarks which I have previously made, or which have been made by others upon collections from localities further south, will, I think, help to bear out these conclusions.

OTARU.

Otaru is the largest town on the west coast of Yezo. It is built along the shore of a small bight on the southern side of Ishikari Bay. In a north-eastern direction this opens towards the mainland. On the north-western side it is sheltered from the open ocean by a rocky point. On this latter side it is overlooked by high cliffs, which are separated from the water's edge by a narrow shore. At the head of the bight there is a shelving sandy shore, which slopes backwards into an undulating grassy country, which a mile or so farther back rises up to form high hills. Although Otaru is by no means a naturally perfect harbour, its bay forms one of the best shelters on this coast, and it is no doubt to this fact that Otaru owes its present importance. And just as Otaru is important at the present day, we might argue that for similar reasons its natural advantages would, to a fishing population, render

it important in times gone by; and that such has been the case may be judged of by the relics which its early inhabitants have left behind them. These relics may be divided into three classes:—1st, Collections of Pits; 2nd, Inscriptions; 3rd, Mounds and Kitchen Middens.

I.—Pits.

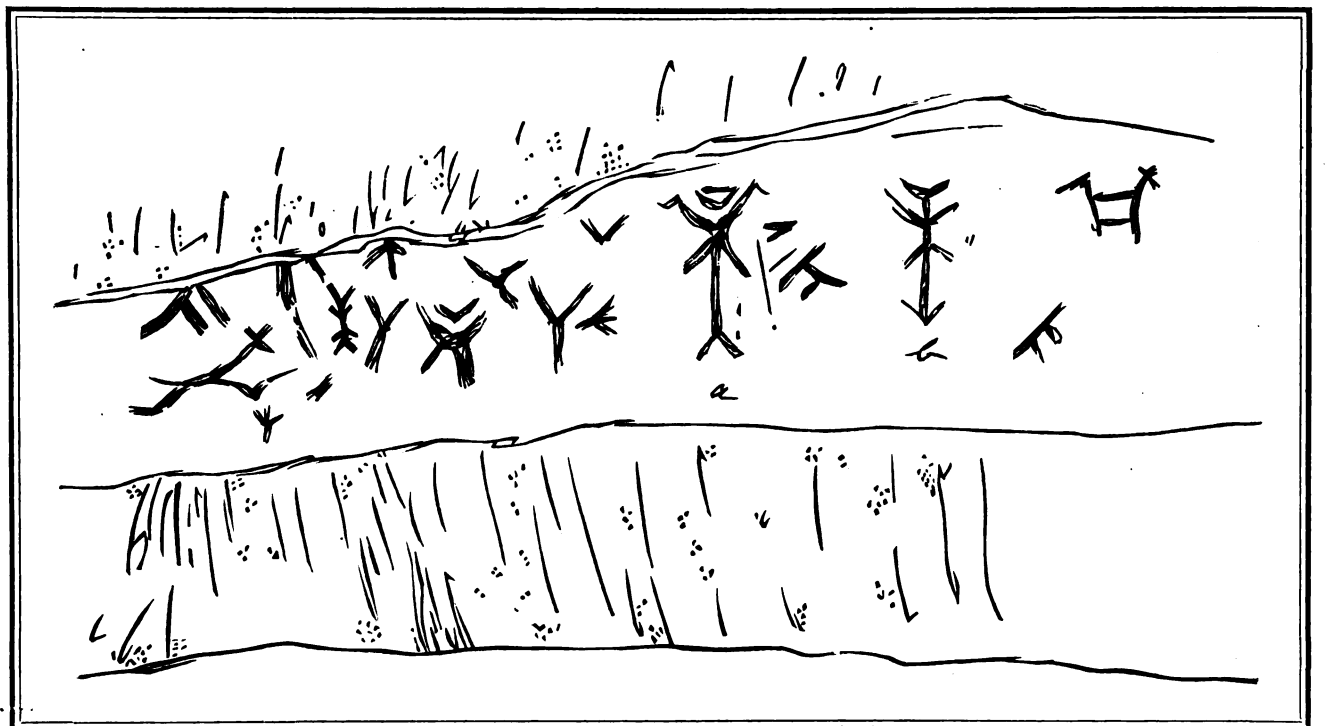
The pits are more or less conically shaped holes, about eight feet in diameter and three feet in depth. In some cases it is possible that these pits were originally rectangular, and that their present conical form is due to the falling in of their sides. Lying at the side of them, and forming a kind of breastwork, there is usually a mound or ridge. These ridges may have been made by the earth which was thrown out during the excavation of the pits. The holes which I examined formed a group near to the foot of the steep hills, about three-quarters of a mile back from the shore. At the time of my visit to them the ground was so thickly covered with ferns and tall grass that it was impossible to determine whether there was any plan in their general arrangement. I may, however, mention that Mr. Fukushi, a Japanese gentleman who accompanied me, told me that when he first saw these holes, which was by looking down upon them from the hills above, a certain regularity in their arrangement was observable. From one or two of the mounds the covering of grass had been removed for agricultural purposes. These places I carefully examined for traces of former inhabitants, but without success.

In my previous paper on this subject I referred to the ancient pit dwellings which are to be seen near Nemoro, and at other places in Yezo. Such pits are said to exist near Sapporo, and the people who are supposed to have inhabited them are said by the Japanese to have been a race of dwarfs whom they called *Koshito*. I have suggested that the pit dwellers are probably represented at the present day by the Kamschadales or Alutes, who until recently lived in covered pits as far south as the northern Kuriles. Whether these pits are similar to those which have been found farther to the north yet needs demonstration. From the little which I saw of them, notwithstanding the tradition which is associated with them of their having formerly been inhabited, I should be inclined to think that they are nothing more than holes which have

been made during farming processes. Perhaps they are the holes from which the stumps of trees have been removed. I may here remark that between the hills at the back of Otaru and the shore the country is destitute of large trees. Similar treeless bands of country are to be observed at many places along this coast, as for instance at Kayonoma. Whether this absence of trees is due to the soil, the proximity to the sea, or their removal by previous inhabitants, without making a detailed examination it would be difficult to decide. Here and there, however, we may observe a small grove, and it is quite possible that such a grove may have existed where we now find the pits behind Otaru. If such has been the case, the holes which we see may indicate the position of stumps which have been rooted out, either by the farmers when clearing the ground, or else by the inhabitants whilst searching for fire-wood.

II.—Inscriptions.

A rough sketch of the inscriptions which I saw at Otaru is given on the accompanying plate. They are roughly cut upon the face of the cliffs on the north-western side of the bay. These cliffs are about 100 feet in height and are capped with small trees. The rock is a white, extremely soft, much decomposed tuff. It is now being quarried as a building stone, and during the process a portion of the inscription of which I have here given a rough copy has been broken away. If the quarrying continues in the direction it was taking when I visited the spot, it is not at all unlikely that the whole of these inscriptions will be very shortly destroyed. The characters look as if they had been scraped or cut with some incisive tool. I do not think that it would be difficult to make similar markings with a stone axe. The lines forming the characters are usually about one inch broad and half an inch deep. They occupy a strip of rock about eight feet long and they are situated three or four feet from the ground. Above them the cliff considerably overhangs, and its form is very suggestive of its having once been more or less cave-like. This portion of the rock has been very much blackened by the action of smoke and fire. An appearance of this sort may have been caused quite recently, by persons engaged in boiling down fish during the manufacture of oil. So far as I could learn, the



INSCRIPTIONS AT OTARUNAI.

Japanese are quite unable to recognize any of the characters, and they regard them as being the work of the Ainos.

I may remark that several of the characters are like the runic *m*. It has been suggested that they have a resemblance to old Chinese. A second suggestion was that they might be drawings of the insignia of rank carried by certain priests. A third idea was that they were phallic. A fourth that they were rough representations of men and animals, the runic *m* being a bird; and a fifth that they were the handicraft of some gentleman desirous of imposing upon the credulity of wandering archæologists.

I myself am inclined to think that they were the work of the people who have left so many traces of themselves in the shape of kitchen middens and various implements in this locality. In this case they may be Aino.

III.—Mounds and Kitchen Middens.

On the flat ground immediately at the head of the bay, in amongst the gardens of that portion of Otaru called Temeya, at a distance of about 80 yards from the beach, there are two or three small mounds overgrown with grass. One of these was conical in form. It was about eight feet in height and from 25 to 30 feet in diameter. On cutting into it I found that it was made of a sandy, black soil, distributed through which there were many fragments of pottery and flakes of obsidian. Now and then I met with an arrow-head or a broken axe. After digging into the heap for a depth of about three feet, a layer of large stones, covered with a whitish clayey material, was met with. From the arrangement of these stones it seemed possible that they might form the cover to the central portion of the heap. Want of time prevented my completing this investigation. In the neighborhood of these mounds, cuttings for roads and gardens shew many small sections. Near the surface, for a depth of six inches or a foot, there is usually a layer of black earth. Beneath this comes a dark-grey sandy soil. Sticking out from these sections, at depths varying between a few inches and two or three feet, at very many places fragments of pottery and flakes of stone are to be seen.

Here and there a small band of shells can be seen. From the

manner in which these shells have been opened and broken, and from the broken pottery and stone which are mixed in with them, these bands evidently indicate so many old middens.

In two visits to this place, entailing about six hours actual work, at which I was assisted by two coolies and about a dozen children, I made the following collection:—

Arrow Heads:

Triangular	65	135
Lancet	49	
Leaf and spear-like	15	
Incurved base	6	
Scrapers		8
Awls		1
Axes		9
Grinding-stone		1
Obsidian Flakes, a large number, say		200 or 300
Fragments of Pottery, a large number, say		100 or 200
Vase		1

Triangular Arrow-heads. (See I.—17-23.)[1]

These are arrow-heads which are all roughly triangular in their general form. They usually vary in their lengths and breadths from one inch by half an inch, down to half an inch by one-quarter of an inch. All of them are provided with a central tang. Of the 65 having this form which were discovered, 64 of them are made from obsidian and one from chalcedony. The obsidian is usually translucent, but in one or two instances it approaches a pitch stone in its characters. In some cases the tang is so long and broad that it approaches in form to the blade of which it forms a part. The general form of arrow-head of this shape is that of two triangles placed base to base.

Lancet-shaped Arrow-heads. (See I.—12-16.)

The material of which these lancet-shaped arrow-heads are formed is similar to that of which the arrow-tips just described are formed. Amongst the 49 specimens which were picked up there are one or two

[1] These numbers refer to the photographs.

I.

which are made from chert, the remainder being of obsidian. They are all roughly chipped. An average measurement for one of these tips is an inch and a quarter long and half an inch broad. A few specimens are like the double triangular form much elongated. The greater number, however, have only the lancet blade with a small tang at the base. It may be remarked that these forms and those which have just been described graduate into each other. (See I.—12-23.)

Leaf and Spear-like Forms. (See I.—5-8.)

These are all so much broken that it is difficult to say what their original dimensions may have been. Of the 15 of these which were collected, 13 are formed from obsidian and two of chert.

Triangular Forms with a reëntrant Curved Base. (See I.—9-11.)

Of these, six were found. They are made from obsidian. The reëntrant curved base forms two lateral tangs. The general form of the remainder of the blade is either lancet-shaped or else triangular, with curved cutting edges. The length and breadth of an average specimen might be reckoned at three-quarters of an inch by half an inch.

Scrapers. (See I.—1-3.)

These are about one inch long, having a curved scraping edge about one inch broad. Of these three were collected. One of them was made of chert, one of obsidian, and one of jasper.

Awl. (See I.—4.)

This is a pointed instrument made from roughly chipped chert. Its total length is about 2¼ inches, the pointed portion, which is roughly rounded, being about 1½ inches.

Axes. (See I.—24-29).

Of these, nine were collected. All may be described as being polished implements, and their smooth rubbed surface strongly contrasts with the roughly chipped implements made from obsidian and chert. This smooth surface, however, must not be regarded as being an evidence of advance towards a civilized condition, the reason for the

smoothness probably being that the axes, through being formed out of a soft material, would continually require to be reground and sharpened.

In seven cases the material appears to be a fine-grained, dark-green, partially metamorphosed slate. In the remaining two cases the material is an altered andesite, a common volcanic rock in Japan.

Two of these implements (see I.—24 and 25) may be described as pieces of slate one-eighth to one-quarter of an inch in thickness, and 1¼ inches broad, which at one end have been sharpened from the two sides to form a cutting edge. The others, instead of being flat, have surfaces which are rounded. Their general form is that of a long isosceles triangle, with a rounded apex, and a base which is usually convex, to form a cutting edge. A common length for these axes is about five inches.

Looking at the lateral edges or faces of several of these specimens, the remains of two grooves cut in towards each other from the sides may be often seen (see I.—24 and III.—13). The intervening portion shews a fractured surface. These markings would suggest that these chisels had been formed by first cutting a strip off from a large slab, two grooves being cut into the slab from opposite sides, and the strip thus marked being subsequently broken off.

Grinding-stone. (See V.—5.)

This is a rough piece of weathered andesite 4½ inches long, 8½ inches broad and about 2½ inches deep. On three sides it has been abraded to form deep concave surfaces, and from the manner in which these surfaces fit the concave surfaces of an ordinary axe, it may be inferred that such a stone has been employed for sharpening these implements, which, from their soft nature, must have been repeatedly required.

Chips.

Of obsidian flakes a very large number were picked up. From a handful of 49 taken up at random, three were of chert, the remainder being of obsidian. They are usually thick and irregular. Of long thin flakes only four were picked up, and the largest of these had only a length of 2½ inches.

II.

Pottery. (See II.—1-15 and V.—1.)

A large number of fragments of pottery were collected, all of which shewed characters similar to those which I have previously described. Nearly all the specimens are covered with the characteristic grained marking which I have suggested might have been made either by means of a coarse cloth whilst the clay was soft or else by means of some milling machine. In some cases these markings are coarse and in others fine. (See II.—1-3). From the manner in which I now observe that this graining is often worked in between incised lines, as a sort of filling up, I see that in such cases it could not have been formed by a cloth or wicker-work, which would have given rise to a more or less connected pattern over the whole vessel.

The incised lines (II.—5-7) are coarsely made and usually represent some rude design.

Other designs worked as raised patterns have been formed by strings of clay. In many cases the inside of the pottery is very black. This is probably due to some fatty carbonaceous material having been burnt in the interior of these vessels during cooking operations.

Besides the fragments of pottery, a complete vase, shaped like an earthenware water-bottle, was obtained from a man who discovered it whilst cutting a road. (See V.—1.) It is very rudely shaped, and the base, which is three inches in diameter, is so irregular that it can only stand upon it in an inclined position. The height is nine inches, and the neck has a diameter of two inches. On the sides of the latter there are two small eyelet holes, through which a string might be passed. These holes appear to have been made whilst the clay was in a moist condition. Inside and outside it is of a dirty, yellowish red colour. The body of the vase is covered with small punctures, giving its surface a grained appearance. These punctures run in lines of two and three, one set of lines often intersecting another set. On one side there are two small holes made by the pick of the discoverer.

The clay from which it is formed, like the clay which has been used for the other pottery, contains many small grains of sand, with here and there a pebble.

Kitchen Middens.

These I had not time to examine closely. The following shells were exceedingly common:—*Haliotis kamtschatkama*, *Mediola modiolus*, and *Saxodomus purpuratus* There were also many fragments of pottery and flakes of obsidian.

HAKODATE.

When I visited Hakodate during the summer of 1878, I had the good fortune to discover a shell-heap which subsequently yielded a number of objects of interest to several explorers. The flint implements, pottery, etc., which I myself exhumed have already been described. Since this time, whilst making some public gardens and cutting roads, a number of excavations have been made which have led to the discovery of a large quantity of prehistoric material, some of which I have been able to obtain.

Arrow-heads. (See III.—10.)

The general appearance of the arrow-heads which have been found in and about Hakodate is similar to that of those which have been found near Otaru. There are two points, however, which are worthy of notice. First, the material of which the Hakodate arrow-heads are made, instead of being almost invariably obsidian, is almost always flint or chert, and arrow-points made from obsidian are extremely rare. Secondly, arrow-heads with a base which is reëntrant appear to be more common at Hakodate than they are at Otaru.

Spear-heads. (IV.—5-11.)

These, like the arrow-points, are usually made from flint or chert. Their average length is three or four inches, and their breadth one and a half to two inches. They are thick and very coarsely chipped. In many instances they shew that peculiar gloss which is indicative of age. The depth at which they are found, which is usually several feet from the surface, appears to be another indication of their antiquity. I have only seen two examples which have been at all finely worked. One of these is a spear-head made from chert. It has a lance-like form, and

III.

is seven inches long and one and a half inches broad. The other is a double-pointed head, also made from chert, measuring four inches by one inch and a quarter. (See III.—4 and 5.)

Knives. (See III.—6-9 and IV.—12-17.)

These are implements which are made from chert. They have often a scimitar-like form, with two sharp edges—one concave and the other convex. At the base there is sometimes a tang, whilst at the head there is either a point formed by the meeting of the two scimitar-like edges or else it is cut off squarely. (See III.—6 and 8).

If an implement like any of these were fixed in a short handle, it would be extremely useful in detaching from their coverings oysters and other shell-fish on which these early people seem so largely to have subsisted.

Because their form is so suggestive of a use like this, I have ventured to call them knives.

Axes or Chisels. (III.—2, 3 and 13. IV.—19 and 20.)

These are very similar to those from Otaru. Amongst them there is one specimen which is remarkable for its size, being rather more than 15½ inches in length. (III.—13.) This I described in my previous paper on this subject.

One or two examples have only been sharpened from one side, which gives them an edge like that of a carpenter's plane. (For an edge view of such a chisel see III.—3.)

Magatama. (III.—11.)

In the Hakodate museum there are two Magatama which are said to have been obtained from the Ainos. One of them is made from hard, green jasper and the other from chalcedony. The hole which has been made through the latter seems to have been made by means of a rhymer. Magatama, so far as I am aware, do not ever appear to have been found in shell-heaps, and it appears very probable that they were only introduced amongst the Ainos since their acquaintance with the Japanese.

Kudatama. (III.—12.)

With the Magatama there are two Kudatama. The longest of them is one inch and the other is half an inch. The material of which they are formed is green jasper. The hole which runs through them lengthwise has probably been made with a metal tool. Like the Magatama, they were used as ornaments. These specimens were obtained from the Ainos, who, it is probable, had previously obtained them from the Japanese.

Pottery. (IV.—1-4. V.—2 and 3.)

The pottery which has been found at Hakodate is very similar to that which has been found at Otaru. One difference, however, is that the former looks more worn and somewhat older. I may also remark that in the few instances where I have observed holes, these appear to have been made by means of a rhymer after the pot had been baked. (See IV.—2.) In the Hakodate Museum there are two small vases which are almost complete. (See V.—2 and 3.) The larger of these is four inches deep, with a mouth 2½ inches wide. Its greatest diameter is five inches. Outside it is of a black colour, and its surface is covered with the characteristic punctured markings. Inside it is brown. The other vase is two inches deep, and has a mouth one inch in diameter. Outside it is of a yellowish colour, and it has scratched upon its surface a rough pattern, in between the scrolls of which there is a punctured groundwork. Inside it is quite black. Both of these vases are said to have been dug up in Hakodate.

Grinding-stones. (See V.—4.)

Whilst making the public gardens at Hakodate, amongst other things a large number of grinding-stones have been exhumed. These are flattish boulders, which on one or two sides have been worn away to form smooth, hollow surfaces, apparently by the sharpening of chisels upon them. The rock is andesite, similar to that of the adjoining mountain. One of these boulders is almost two feet long, one foot broad, and nine inches deep. Other examples are larger than this, whilst others are smaller.

From the fact that I find by experiment that these chisels become

IV.

easily chipped, even when cutting soft wood, these grinding-stones must have been largely employed. Their number would seem to bear out such a view. Whilst working with them upon wood it must have been necessary always to have had a grinding-stone close at hand. It is probable that sand and water may have been used during the sharpening process, but there are no striæ on their surface such as we might expect had such been the case.

Other Remains.

Besides the stone implements which have been found actually in Hakodate, others have been found in the neighbouring country. Amongst them I may mention spear and arrow-heads of obsidian from Obanomura, Mitshikori, Shidakakuni, and axes from Aretake.

Conclusion.

Looked at generally, the relics from Hakodate appear to be much older than those from Otaru. This is testified by their comparative roughness, their glossy surface, and the greater depth at which they have been found. That such should be the case appears to be borne out by the fact that the aborigines of Yedo were probably driven away from Hakodate long before they were compelled to leave Otaru, and therefore at this latter place we ought to expect to find their more recent work.

PART II.—GENERAL REMARKS UPON THE PREHISTORIC REMAINS OF JAPAN.

As the remains which I have now described have such an important connection with remains of a similar kind found in Yezo and other parts of Japan, I will now give, 1st, a brief summary of the more important facts which are before us, and, 2nd, the conclusion towards which such facts appear to lead us.

Shell-heaps.

All over Japan, from Yezo in the north to Kiushiu in the south, "kitchen middens" or "shell mounds" have been found. In Yezo I have seen such mounds at Nemoro in the extreme north, near

Horoidzume, Otaru and Hakodate, and from each of these, with the exception of Horoidzume, I have made collections. Besides these localities, there are in Yezo several other places from which I have seen specimens. In Nipon I have also examined several kitchen middens, as those near Ômori, Tsurumi and Mississippi Bay. In addition to these localities, several others might be mentioned where kitchen middens are found, and from which collections have been made.

From the south we have the collections of Mr. Lyman and Prof. Morse, made in Kiushiu. These heaps are principally made up of shells and broken pottery. Mixed with these, there are many fragments of broken bones, implements of stone and horn, and other objects which may have been employed as ornaments. The shells looked at superficially appear to be similar to those found in the neighbouring sea. By a careful examination of those found at Ômori, Prof. Morse has come to the following four conclusions:—

First—That a change has taken place in the relative abundance of certain species.

Second—That a change has taken place in the relative size of certain species.

Third—That a change has taken place in the relative proportions of the shells of certain species.

Fourth—That a change has taken place in the extinction of certain species.

With regard to these observations, Prof. Morse remarks that "the modification in the relative size and proportions of certain species is profound, and would seem to indicate, either that species vary in a much shorter time than had been supposed, or else the deposits presenting these peculiarities have a much higher antiquity than had before been accorded them." These changes we should be inclined to think are in great measure due to the great changes which have been taking place in Yedo Bay *during recent times*. Upheaval is the movement which has last taken place, and is probably still continuing. The bay is rapidly silting up with the deposits brought down by the numerous large rivers which it receives. And during the last 800 years large cities and towns have sprung up round its shores, all of which have added something to destroy the purity of its shallower

waters. All these causes combined are, and have been, making rapid changes in physical conditions, and with them we should naturally expect a rapid change in the fauna which are dependent on them.

The pottery generally occurs in fragments. At Nemoro, in 1878, and this year at Otaru, I was fortunate enough to meet with single specimens of complete vessels. Such specimens are, however, extremely rare. Many of the vessels indicate from their blackened interiors that they had probably been used for cooking purposes. In places they are pierced with holes, which, from their conical shape, would seem to show that they had been made with triangularly shaped rhymers, as for example a pointed flake of flint. The chief point, however, which is to be noticed about the pottery is, that whether it is found in the north of Yezo or the middle of Nipon, its general appearance is similar, and the patterns and designs which are worked upon it, so far as I have seen, are in many cases identical.

The bones which have been found are those of fish, birds, monkey, deer, dog, wolf and pig. At Ômori Prof. Morse exhumed a number of bones which he pronounces to be human, and from the way in which they are scattered amongst the other refuse of which these heaps consist, and from the manner in which they are broken, their discoverer regards them as evidences of cannibalism. Similar discoveries have been made by Prof. Morse in Hîgo.

Prof. Morse, in describing the mounds at Ômori, gives a list of "Objects not found at Ômori." About these we will make no remarks.

In these shell-heaps, or scattered through the ground near to them, stone implements are often found.

The number and the nature of these may be judged of from the description which I have given of the deposits at Hakodate and Otaru.

Tumuli.

The mound-like heap which I partially explored at Otaru may be regarded as an example of a tumulus. Many of the tumuli which are found in Japan are associated with tradition, as, for instance, the Yezo Mori near Morioka, which is said to contain the bones of "Ebisu" or Ainos slain by the general Tamura maro. It is possible that tumuli of this description may repay the explorer. These tumuli must not,

however, be confounded with the mounds which line the sides of many of the high roads, which have been heaped up to indicate distances, and fulfil the functions of a European mile-stone.

Caves.

In many parts of Japan a large number of caves have been discovered. In the limestone districts and some of the old volcanic rocks these appear to be natural. I explored several of these caves in Shikoku and also in other places. The only results which I obtained were purely geological.

Artificial caves near Kumagai, Odawara, and in other localities, which have been examined by Mr. Henry von Siebold, from the pottery they contained, and other evidence which they yielded, showed that they were of Korean origin. This conclusion is borne out by the names of several places in the neighbourhood, which are also of Korean origin.

If we take into account the evidence furnished to us by history (for example see the commencement of the *Nihon-ô-dai-ichi ran*, Annals of the Emperors), we shall be led to the conclusion that the early inhabitants of Japan were cave-dwellers. In the book referred to, the names and position, together with a description of many of these caves, are given in detail.

The following notes on the caves and cave-dwellers of Japan I have extracted from the *Kekkio-kô*, a recent book written by Mr. Kurokawa Mayori. These notes may be of interest, as they tell us not only something about the caves of Japan, but also something about the aboriginal inhabitants and their wars with the advancing Japanese.

For the general revision and retranslation of the greater portion of these notes, my best thanks are due to Mr. Ernest Satow.

The cave-dwellers of antiquity dug holes on the sides of hills called *muro*, and lived in them, and they were also used as sleeping-places because of the protection which they afforded against cold and heat. Some of these caverns were in the rock (*iha-ya*), others in the earth (*muro*). In the *Kozhiki* mention is made of a god "named Idzu-no-wo-habari no kami, who dwelt in the heavenly rock-cave at the source of the Peaceful River of Heaven." [This so-called god was a sword, and the Peaceful River is the Milky Way.] In the 3rd book of

the *Mañ-yefu-shifu*, Ohishi no Sukuri, in a stanza about the rock-cave of Shidzu in Ihami, says "the rock-cave of Shidzu, where Ohonamuchi and Sukuna-biko-na dwelt, through how many ages they must have existed!" These were caverns artificially excavated in the rock. It was also a rock-cavern in which the Sun-goddess hid herself.

In the *Nihoñgi* it is said that Zhiñmu Teñwau said secretly to Michi-no-omi no mikoto, "Do you be leader of the Oku kumebe, and construct a large *muro* at the village of Ôsaka," and it is further said that "he *dug* a muro." [It is worth while noticing that the Chinese character 室 used in the original, and translated *muro* by the Japanese, has no connection with "caves," and simply means "apartment."] Mention is also made in the same part of the *Nihoñgi* of *tsuchi-gumô*, literally earth-spiders, who stoutly resisted the army of the mikado, but were finally subjugated. [It is thought probable that *tsuchi-gumo* is for *tsuchi-gomori*, "dwellers underground."] . Some of them are described as short in the body, with long legs and arms, like pigmies, and they are said to have been caught in nets made of the long creeping stems of a wild plant, probably the *kuzu* (*Pueraria Thunbergiana*). The same part of the *Nihoñgi* speaks of "people of simple habits, who perched in nests and lived in holes." In the Chinese classic called the Book of Changes (易經) there is a passage which speaks of men having lived in caves and in the open air, until the Sages (or Holy men) of later ages taught them how to build houses, and the Book of Rites (禮記) says that the ancient sovereigns lived in excavated caverns during the winter, and in huts (or nests in the trees) during the summer.

The ancient Topography of Setsutsu (no longer extant, but a fragment quoted in the commentary on the *Nihoñgi*, called *Shiyaku Nihoñgi*) speaks of cave-dwellers, who were called *tsuchi-gumo* in the vernacular. In the Topography of Hiuga (fragment quoted in the same book) occurs a legend to the effect that "when Ninigi no mikoto descended from heaven upon Mt. Takachiho in Hiuga, the heavens were pitch-dark, and day was indistinguishable from night. It was impossible to find the way or to recognize surrounding objects. He was relieved from this predicament by two *tsuchi-gumo* named Big Sword-guard and Little Sword-guard, who advised him to pluck ears of the

wild rice which grew there, and scatter the grains about him. He did as they suggested, upon which the sky cleared, and the sun and moon shone forth." [Kurokaha gravely says that we must not suppose that these cave-dwellers were known as *tsuchi-gumo* at the time of the descent of the "Heavenly grandson," but that it was applied to them at a later date, the term not having been invented before the time of Zhiñmu Teñwau.]

The author is further of opinion that persons of rank had houses in which they usually lived, and that some of them had caverns constructed behind the house, or a little way off, which they used as sleeping-apartments, while the common people usually had huts with caverns similarly attached, while there were some who lived altogether in caves.

In the 4th book of the *Nihoñgi*, which contains the history of Suwizei Teñwau, a story is told of one prince (who afterwards became mikado) trying to kill another as he was sleeping in his great cellar. [The author is of opinion that a sort of dais or platform was constructed on one side of the cave to use as a bed-place.] In the *Shiyau-zhi-roku* or Catalogue of Families, mention is made of a family descended from a man who in the time of Zhiñmu lived in a cave.

Leaving the central parts of Japan, the author next examines the passages in which cave-dwellers in the eastern provinces are spoken of. He quotes passages from the Topography of Hitachi, which refer to *tsuchi-gumo* who lived in artificial caverns. These people are described as partaking of the character of the wolf and owl, and being as expert thieves as the rat. It was impossible to tame them. (The Topography of Hitachi was composed in the Chinese language about 710, and consists chiefly of legends taken down from the lips of the oldest inhabitant.) In this same book a story is told of one Kurosaka no mikoto, who, taking advantage of the temporary absence of some of these cave-dwellers, filled up the entrance to their dwellings with thorns. On their return he hunted them with horsemen, but being caught by the thorns and unable to escape, many received wounds of which they afterwards died.

In the reign of Suzhiñ Teñwau (who, according to the popular chronology, reigned from 97 to 30 B.C. and died at the age of 120 years), says the same topography, an expedition was sent against the

robber tribes of the eastern barbarians (under the command of one Take-kashima no mikoto, who very likely took his name from Kashima, a district in Hitachi province). He took up his quarters on Aba no shima, lying some distance west from the sea-shore. There were two chiefs of the barbarians, who dug holes and constructed banks of earth, which formed their ordinary dwellings. The Mikado's officer sent his men in pursuit of the savages, who retreated behind their earthworks and guarded them strictly. He therefore held a council of war, and picking out his most valiant warriors, formed them into an ambuscade amongst the hills, while he held the shore with his ships. During a whole week he had songs and music performed on board, which attracted the whole population, man and woman, down to the beach, when the signal was given, and the warriors issuing forth from their hiding places, seized the earthworks, and then taking the barbarians in the rear made them all prisoners, and burnt them alive.

In that part of the *Nihoñgi* which contains the history of Keikau Teñwau (said to have reigned from 71 to 130 A.D. and to have lived 143 years) the most redoubtable of the eastern babarians are said to have been the Ainos [so that there must have been other tribes as well as Ainos]. The sexes dwelt together promiscuously, without distinction of father and son (*i.e.* of parent and child). In the winter they lived in caves and in the summer dwelt in huts (or nests). They dressed in furs and drank blood. Even brothers were suspicious of each other. In ascending the hills they flew like birds, and passed through the grass like running quadrupeds. They forgot the favours they received, and always revenged injuries, and to this end they carried arrows in their hair and swords hidden in their dress. They were in the habit of assembling in bands to harry the Japanese frontier. Sometimes they took advantage of the Japanese being engaged in agriculture to carry them off into captivity. When attacked they concealed themselves in the grass, and when pursued, fled into the hills.

Kurokaha then examines the notices of cave-dwellers in the western parts of Japan.

The Topography of Hizeñ speaks of *tsuchi-gumo* in Higo, who refused to submit to the authority of the Mikado in the reign of the prehistoric sovereign Suzhiñ Teñwau already mentioned. His son, the

mythical hero Yamatodake no mikoto, also encountered *tsuchi-gumo* in the course of his adventures. Fourteen or fifteen other passages are cited by him in which *tsuchi-gumo* are spoken of. Of some it is remarked that they "did not use stone, but built with earth," from which the natural inference would be that they constructed mud huts, or perhaps roofed enclosures with thick earthen banks. It is worth while noting that all these cave-dwellers and *tsuchi-gumo* disappear before the beginning of authentic historical records.

As it is of interest to know the localities in which these *tsuchi-gumo* are said to have lived, and to record the wars which were waged between them and the advancing Japanese, we add the following questions from the Topography of Hizeñ, and other books, the names of which are mentioned.

In the Topography of Hizeñ mention is made of two female *tsuchi-gumo* who modelled out of clay the figure of a man and a horse. These they offered to the god Aragami in the village of Shimota mura.

The massacre of *tsuchi-gumo* by Yamatodake is spoken of.

About this time many barbarians or *tsuchi-gumo* appear to have been killed on account of not obeying Imperial orders and refusing to serve as soldiers.

The Emperor Sujin Tennô, whilst hunting in a place where there were 80 islands, discovered that on one of them called Kochika a *tsuchi-gumo* named Ômimi resided, and on a second island called Ôchika there was a *tsuchi-gumo* named Tarimimi. The remaining islands were uninhabited. At the same time a rebellious *tsuchi-gumo* dwelt in Mount Hahakoyama.

In this book many other accounts of *tsuchi-gumo* are given. Some appear to have been subdued, whilst others were destroyed. They are mentioned as living at Hayakuno mura.

When Jiñgô Kôgô (201-269 A.D.) intended to attack Korea, she was wrecked amongst *tsuchi-gumo*.

The Emperor Keikô Tennô (71-130 A.D.) fought with *tsuchi-gumo* in the field of Neginô.

A stone cave called Nedsumi no iwaya existed in a mountain near the villages of Tomi no mura in Buzen.

In Bungo, north of Asami no sato, there are two large cave-like

dwellings built of stones, which are supposed to have been inhabited by *tsuchi-gumo*. In this district the *tsuchi-gumo* seem to have formerly existed in great strength.

Jinmu Tennô destroyed the *tsuchi-gumo* of Yamato.

Sujin Tennô, in the 48th year, made war against *tsuchi-gumo* of the western provinces.

The Emperor Keikô (71-130 A.D.) carried on several wars against the *tsuchi-gumo* of the western provinces. Special reference is made to wars in the province of Ômi.

In the middle volume of the *Kojiki*, reference is made to men who dwelt in caves. These men are said to have had tails.

In the *Jindai no maki* (a history) there are references made to cave-dwellers.

In the *Kojiki* (first volume) caves with stone doors are mentioned.

In the *Suisei Tennô ki* a large cave in Kataoka is spoken about.

All the caves, both the stone caves and earth caves, are very often mentioned as having doors which, when shut, were very difficult for those on the outside to open.

In the *Harima fûdoki* caves are spoken of at the village of Ụwato-mura.

From the *Kojiki* and other books we learn that although the caves were frequently very small, they were often very comfortable within. Straw mats and skins were used for beds.

In the *Kensô Tennô ki* (history of the times of the Emperor Kensô 485-487 A.D.) mention is made of the cave-dwellers having beds made up of skins.

From the *Jindai no maki* in the *Nihon shoki* we learn that the cave-dwellers buried a dead person in the cave where he had dwelt when alive. This custom also exists among the Ainos in Yezo. In the same book mention is made of caves of recent origin.

In the *Nintokuki* we read that in the 62nd year of the reign of Nintoku, artificial caves were made in which to keep ice.

Even down to the time of the Emperor Tenmu Tennô (673-686 A.D.) caves appear to have been dug by the Japanese as bed-rooms and dwelling places.

Pit Dwellings.

In various parts of Yezo, collections of small pits have been found. These were, I believe, first observed by Captain Blakiston of Hakodate. In 1878 I examined several of these at Nemoro. From the similarity existing between these pits and a number of covered pits which I saw in the Northern Kuriles, which had been the tenements of Alutes, I was led to the conclusion that the pit-dwellers of Kamschatka had at one time dwelt further south than they do at present, and were in all probability the originators of the groups of pits which are scattered round the shores of Northern Yezo.

The conclusion to which I am led with regard to the shell-heaps is that they are of Aino origin. The chief arguments which have been brought forward in opposition to such a view are, first that the Ainos are not pot-makers, and if they ever were pot-makers it is difficult to conceive how such an art could be forgotten.

In answer to such a statement, I may mention that Mr. Charles Maries, when travelling near Horoidzume, on the eastern coast of Yezo, saw at the houses of the Ainos clay vessels, in appearance very like the fragments obtained from the shell-heaps, and he believes that the Ainos in that district still manufacture pots. Further, I may add that in a voluminous and profusely illustrated work upon the Ainos written in the year 1800, which is now in the possession of Mr. James Bisset of Yokohama, there are drawings given, together with a description of the pots which were at that time manufactured by the Ainos.

The second objection is that the Ainos were not cannibals, and the mildness of their character would preclude even the suspicion of such a trait ever having soiled their character. In reply to this, I may remark that in many of the works (of which there are some twenty or thirty in the Asakusa library) describing the Ainos, there are many references given, which shew that the Ainos, a few hundred years before they were properly subdued, possessed a character which was sufficiently cruel to render it unnecessary for us to extend our imagination very far beyond the incidents which are there recorded to see them practising cannibalism. As instances of their cruelty, we may remark that amongst their punishments, severing the muscles of the leg, boiling the arms, slicing the nose, etc.,

were not uncommon customs. (On this subject see the remarks of Mr. Henry von Siebold, in his interesting and valuable book entitled "Notes on Japanese archæology.")

When speaking on this subject we must remember that it is not the Ainos of the present day about whom we speak, but about their ancestors, who, like the ancestors of nearly all races, were more barbarous than their modern representatives. Even in a country like Scotland, traces quite as suspicious as those of Ômori have been discovered, and although the Scotch a hundred years or so ago were, as compared with their present condition, sufficiently uncultivated (see Buckle's History of Civilization, Vol. II.), we have here an instance where it is even more difficult than it is in the case of the Ainos to carry our imagination back to the times of cannibalism; but in spite of our repugnance and the apparent impossibility of imagining such a state, the facts which are before us force us to these unpalatable conclusions. Prof. Morse lays great stress upon the platynemic tibia which he has discovered in these shell-heaps. If such tibia are a characteristic of the Ainos, and I am assured that such is the case, we have here another indication pointing in the same direction.

That the originators of these shell-heaps were Ainos, and not the remains of others who may have lived before them, I take the following as being evidence of the strongest character:—

1st.—The contents of the heaps, from the remarks just made, are such that it is quite possible that they may have been of Aino origin. The designs on the pottery are, in very many instances, similar to the designs which are carved by the Ainos of the present day. When we remember that the Ainos have been continually decreasing in numbers, whilst at the same time they were coming closer in contact with the Japanese, from whom pottery which was both cheaper and better than their own could be obtained, it is only reasonable to suppose that the art of pottery should be gradually given up. Illustrations of parallel cases might be cited from European sources, as for instance the loss of the art of glass making amongst the Venetians.

2nd.—The positions which these shell-heaps occupy are on spots which we know from history were once tenanted by Ainos, and even

down to the end of the 12th century Ainos were living in Nipon. Traces of this occupation are left in the names of many places, as for instance *Imabetsu* in Tsugaru.

If we assume that these shell-heaps were formed near to the shore, as shell-heaps are formed by the Ainos and Japanese of the present day, and then appeal to geological reasoning, we shall be led to similar conclusions.

As an example of such reasoning we may take the Ômori shell-heap, which is situated on the inner edge of the Tama-gawa delta, about half a mile distant from the sea-shore. If we, then, assume that the rate of advance of this delta has been on an average one yard per year, 880 years ago the Ômori heap must have been very near to the sea-board. If the rate of advance has been only one-third of this, that is one foot per year, the time which has elapsed since the Ômori heap was on the shore can only have been about 2640 years. These rates of advance have been computed by comparing together a number of old maps shewing the head of Yedo Bay.

At the time I wrote the "Stone Age in Japan" (a paper which has already been referred to), in order to determine the age of the Ômori shell-heaps I used an argument similar to that which has here been brought forward. The materials on which I based my arguments consisted for the most part of a number of old maps which are to be found in the Asakusa library. For copies of these maps my best thanks are due to Mr. Toshio Nakano, of the Kôbu dai Gakkô.

Since making these calculations, I have seen a valuable paper by Dr. Edmund Naumann upon the plain of Yedo, in which he publishes a copy of a map of Yedo in the year 1028.[1] (See Petermann's Mittheilungen, 25 Band, 1879, p. 123.) As this map, combined with others to which I have before referred, forms such excellent material from which to study the advancements which have taken place in the coast line round the head of Yedo Bay, I have ventured to append the accompanying sketch, on which five coast lines are marked, namely, those of the periods Chôgen (1028-1036), Chôzoku (1457-1460), Eiroku (1558-1569), Kuanyei (1624-1644), and the one of the present day. As the old

[1] From what Dr. Naumann says respecting this map, too great reliance must not be put upon it, as it was in all probability drawn from tradition.

maps from which these are taken are in many places very indefinite, these sketches must be regarded as being only approximately true. Also it must be observed that these coast lines are not complete, only those portions of them being drawn which shew an *advancement* of the sea-board. At many times in places there was a retreat of the land, probably due to its being worn away by the Sumida-gawa or the sea. To have represented the complete coast lines during each of these periods would have necessitated the drawing of five maps, and these, if they were superimposed upon each other, would have led to a confusion of lines without being more valuable for the purpose for which the accompanying map has been drawn.

By looking at the map as it stands, it will be seen that the delta of the Sumida-gawa and the Naka-gawa has increased, like all other deltas, at very different rates in its different parts. Near the mouths of the rivers the advance has been rapid, whilst to the right and left we see that it has been slow.

As a few out of the many examples which might be taken to shew what this rate of increase has been, we may take the following:—

1. From Asakusa in 1459 to the mouth of the present Sumida-gawa the distance is about 4,200 yards. To form this in 420 years gives an average advancement of the land at 38 feet per year.

2. From the coast line of 1459 opposite to the castle and across the modern Tsukiji to the present coast, is a distance of about 1,200 yards. This gives an advancement of eight feet per annum.

3. From the coast line of 1459 at Shiba, the distance is about 300 yards. This gives an advancement of about two feet per year.

4. From the coast line of Asakusa in 1028, to the present coast line is a distance of about 4,800 yards. To form this in 850 years indicates an advancement of 17 feet per annum.

5. From the old coast line of Funa-gawa in 1558 to the present coast line is a distance of about 2,400 yards. To form this in 320 years means an increase in the land at the rate of 22 feet per year.

The Ômori shell-heap is situated on the edge of the Tama-gawa delta as Shiba is on the edge of the delta of the Sumida-gawa.

From these results it will be seen that by taking an average advance of only one foot per year, when calculating the age of the Ômori heap,

I am in all probability far within the limits of what has actually been the case, and therefore the age of the heap, rather than being more than 2,600 years old, is probably less than that period.

It may of course be remarked that the delta of the Sumida-gawa is not that of the Tama-gawa, and that on this latter river the rate at which silt has been deposited may have been much less than the rate at which it has been deposited in the former.

To any one who has looked at the two rivers, it will, however, be recognized that the differences are in every probability too small to make any essential difference in so general a calculation.

From the long spit which the Tama-gawa is throwing out, assuming that these two rivers are of the same geological age, it would seem that if there is a difference we shall find that the deposition in the Tama-gawa is the more rapid of the two, and if careful investigations and calculations were made, the time when the Ômori shell-heap was on the sea-shore would prove to be less than 2,000 years ago.

[*Note.*—In confirmation of the correctness of these old maps, I may mention that Dr. Naumann has, by several historical references, shewn that sea existed in those parts where the maps indicate it to have existed. As a farther proof we have the geological evidence based on the nature of the soil.]

Returning now to the question before us, we see that geological reasoning and historical research are supplementary and afford each other a mutual support. The one tells us *when* the shell-heaps were on the shore, and the other *when* Ainos were hunters in the land, and these periods are accordant.

That the Ainos used stone implements there seems to be no doubt. In the book already referred to, written in the year 1800, the names of Aino tribes living in the interior of Yezo who were *then* using stone implements are given, and the reasons why they should be compelled to do so are commented upon.

In all that has been here said about the Ainos, it must be remembered that the name "Aino" has been used in its most general sense. In Yezo at the present day there are different tribes of Ainos, and it is

Non

quite possible that the tribes who originally dwelt in Nipon may have become quite extinct, and that those who still live in Yezo are only branch representatives of their ancestors.

So far as we are yet able to judge from the facts before us, the conclusions then are:—That the Ainos once covered Japan, and that they have left behind them kitchen middens as indications of their presence. Step by step they were gradually forced back towards the north. During this retreat it is possible that they in turn drove the pit-dwellers, who were probably Alutes or Kamschadales, through the Kuriles toward Kamschatka. Whilst these changes were going on in the north, the Japanese advancing from the south, being desirous of learning the arts practised by their neighbors on the continent, invited over colonies of Koreans.

If we could go back to the time when the Ainos roamed through Nipon, no doubt we should find them pondering over broken stone and other spoor which had been left by those who lived before them. If, on the other hand, we could go forward to the period of the coming race, to the time when the existence of Europeans in Japan will be little more than folk-lore, no doubt we should see the archæologist of the future filling his museum with fragments of brick gathered on the site of ancient Tokio.

In fact, all that we have before us is the fragments of a long story. Coming before that which has here been indicated, there is a paragraph which so far has not yet been read, whilst after it there is a paragraph being now worked out, and which some day will be studied by a future generation.

The story is that of how one race has succeeded another. It finds its parallel in all countries, and it has been called by Darwin the struggle for existence.

DISCUSSION.

The President, in thanking Mr. Milne for his very valuable communication, asked for more information as to the evidence of land upheaval and silting which had been mentioned in the paper, and whether there was any evidence that upheaval was now going on in this part of the island.

Mr. Aston expressed his gratification that so much attention had been paid during the last few years to the important subject of the prehistoric remains found in Japan. He was glad to observe a tendency to diminish the antiquity which had been earlier assigned to these remains by some of the writers on this subject. Civilization is in Japan a product of much more recent growth than in Europe, and we do not require to go so far back in order to meet with tokens of a primitive degree of advancement. In connection with the question of the Aino occupancy of the main island of Japan, Mr. Aston exhibited a rubbing from a stone which may still be seen at Taga near Sendai. This stone has an inscription of which the following is a translation:—

"WEST.

"Castle of Taga:

Distant from the capital				.....	1,500 *ri*.
"	"	"	frontier of Yezo	.....	120 *ri*.
"	"	"	" Hitachi	.....	412 *ri*.
"	"	"	" Shimotsuke	.....	274 *ri*.
"	"	"	" Makkatsu	.....	3,000 *ri*.

"This castle was built in the first year of Shinki, Kinoye-Ne (A.D. 724), by Ôno Ason Adzumado, Azeshi (Commissioner of Police) and general for the maintenance of order, upper grade of the junior division of the fourth rank and fourth rank of the Order of Merit. It was repaired by Yemi no Ason, Fujiwarano Asakari, Sangi (Councillor) Setsudoshi (General) of the Tôsandô, upper grade of the junior division of the fourth rank, Minister for Home Affairs, Azeshi(Commissioner of Police), and General for the maintenance of order, in the 6th year of Tempei Hôji, Midzunoye-Tora, A.D. 762.

"1st day of 2nd month of the 6th year of Tempei Hôji (762)."

The *ri* mentioned here are evidently not the ordinary Japanese *ri*, but the ancient *ri* of six *chô*, or somewhat less than half a mile. This would place the Yezo frontier rather more than fifty miles north of Sendai, thus leaving a large tract which was then known as Yezo, and which we may presume was still inhabited by Ainos. Of course this inscription is only one of a number of evidences of a similar character.

Dr. H. Faulds concurred in the President's estimate of the valuable contribution which had just been listened to. Prof. Milne had spoken of one of the vessels as showing a cord mark. Undoubtedly the jar spoken of had a raised pattern of cord-like shape running in a wave around its neck. Archæologically, however, it must be noted that the so-called cord-marks in primitive pottery were something quite different from this. They are simple, rough, inartistic indentations in the clay, made before drying. The simplest, and presumably earliest, specimens seem to have been the result of pressure from bandages of rough open mat or cloth made from grass ropes. These bandages were probably wound around the soft vessel in order to enable it to retain its shape while

drying. Such an appearance is often seen in the large lumps of clay taken out of Tôkiô canals for the undercoat of plaster, and the impressions are made by the grass rope bags in which the mass is carried, but the meshes are much less open in early pottery. The ordinary cheap domestic earthenware hitherto so despised by *connoisseurs* is full of striking reminiscences of this rude art now so generally supposed to be lost. The black braziers in common use in Japan are covered with stamped impressions which can be traced back, the speaker believed, through many slight modifications to this early character. The desire to conform to a conventional type which has become deeply rooted in the domestic habits of a people gives rise in art to many such examples. The "mat" impressions figured by Prof. Morse in plate V. fig. 1 are to be found repeated in the most recent pottery, and the speaker had seen and examined a piece of the most primitive grass rope kind which had certainly been made in Japan within the last seven hundred years. Those found in the shell-heaps studied by Professors Milne and Morse were all of a more highly developed and differentiated type than that, and the fragments now shown by the essayist were identical with more found in Ômori. The types hitherto found in these shell-heaps did not seem to the speaker to be separated by any one well-marked character from contemporary pottery of a low grade. Indeed the shell-heaps scattered along the old and recent coasts of Yedo Bay presented in their fragments of pottery a series of modifications leading up to recent times, and some of the heaps may be seen in actual process of accumulation. People not accustomed to such enquiries naturally perhaps tended at first to exaggerate a little the antiquity of their discoveries, and hence cautious criticism was useful. What was the greatest antiquity which could be allowed to them? Looking at all the facts, he had ventured publicly to assign 600 years as the probable antiquity of the Ômori heap, and was glad now to announce that Mr. Ninagawa, of the Tôkiô Museum, and the principal authority on the subject of Japanese pottery, decides that the remains of earthenware cannot be older than about 1,000 years, for at that time it was known that the methods of working which had been adopted were first introduced into Japan. It thus remained, therefore, for him (the speaker) to point out that the "almost infinite" varieties represented there, as alluded to by Prof. Morse in his work, and the notable fact of their being spread so widely along the old coast of Japan, would probably necessitate their being dated a century or two later than that period, which came very near indeed to his original published estimate of 600 years. A definite rise of the beach had been historically recorded, and there were several facts to show that even in the present century a very noticeable elevation had taken place. It would be a fallacy, however, to assume generally that any shell-heap had necessarily been formed on the actual coast line. Cases had been recorded in a Scottish newspaper, during the Queen's recent tour in the western Highlands, where struggling croft farmers had lived on shell and other fish largely, and although their farms were at a long distance from the shore and high above it,

their homesteads were surrounded by heaps of empty shells, doubtless with fragments of contemporary pottery strewed amongst them. A future geologist looking simply at such a fact might readily err in his deductions. In the elaborate work of Professor Morse, published by the University, he had carefully given us a description of the markings of the prehistoric pottery found by him. He (the speaker) now begged leave to show some interesting but unpretentious specimens of the "prehistoric" pottery of this nineteenth century. The first is a tea-pot of unglazed earthenware. It has been entirely moulded by the fingers, and has in many places been indented all over with a rough cloth pattern; its ornamentation consists of the simplest and most childlike whirls and scratches, while its handle is stuck on in the most primitive fashion. It is in quite common use in Tôkiô, the capital of Japan, at the present day. The next article is still more strikingly "prehistoric." It cannot have been turned on the wheel, but is an imperfect cone made of a sheet of rolled-out clay folded on itself like a grocer's poke. Its neck has been narrowed and then the rim everted by the pressure of fingers, the markings of which are retained. It has a somewhat amphora-like appearance, and resembles also the ancient lachrymatory or tear-bottle, but is much cruder in design than any the speaker had seen in museums and much larger than the latter. They are used for keeping warm the *sake* of the Japanese night policemen chiefly, the cone being thrust into the hot ashes of the brazier. Such examples ought to suggest more caution in making deductions than had sometimes been displayed in our day. A curious example of the conventional reproduction of such primitive scratchings and indentations as adorn one of the fragments (No. 3) shown by Prof. Milne was on view in a curio shop in Asakusa a few weeks ago. The vessel was of iron and not of very ancient date. It was an exact imitation of a clay one of the same type which must have existed as a model. Any one would have admitted that. Another type of pottery which is now in common use and is glazed, reproduces the iron conventional one—the staining of rust being very well imitated. The original type has here undergone at least two transmutations, and the first hatchings seem to be conventional "reminiscences" of an expiring cord-marked pottery. Such facts, and they are exceedingly numerous, tended to show that a tradition of the oldest shell-heap pottery still lives in the lower strata of contemporary art in Japan, which in itself is corroboration of the newness of these oldest known shell-heaps and their continuity in historical evolution with present Japanese progress. The late survival of "prehistoric" pottery and other arts is the rule rather than the exception under certain conditions of social progress. The speaker was not prepared as yet to accept finally the belief that the Ainos were the founders of these heaps. To show that they now have similar pottery, etc., might perhaps in itself not show more than that, as gypsies in Europe do, they had slowly adopted the arts of the more civilized race surrounding them. But other evidence may yet be found to settle this question. When we look back to primitive man struggling to reach a higher level, we are glad to avail ourselves of every feeblest aid

to get a glimpse of him, but the records he has left are very few and not very expressive at the best. Attempts had been made to determine whether ancient men were not sometimes left-handed, and the direction of the pressure in making arrow-heads had been thought to demonstrate the fact. It had occurred to him that the finger markings in primitive pottery might be made to contribute some faint ray of light. The furrows on the tips of one's fingers form a very distinct pattern. In all the fingers of one man's hand they might be found to run downwards obliquely from left to right. In another the thumb only might show another pattern. In another still, all the fingers might be different from this, and so on, so that it was not impossible that a new means of reaching some legible race marks might be added to science by a careful comparative study of these familiar finger-point patterns. At present the facts known to him in this connection were simply puzzling, but law must underlie them.

In reply Mr. Milne observed that with regard to the suggestion of Dr. Faulds that a mistake might arise by assuming that the Ômori shell-heap was on the sea-board at the time of its formation, it must be remembered that all the shell-heaps which have been discovered in the same neighbourhood lie round the edge of an ancient coast line on the border of a delta, and that the position of the Ômori heap was not an exceptional one like the position of the shell heaps which had been referred to by Dr. Faulds. The pit dwellings which Mr. Aston spoke of also appeared to be of an exceptional nature, whereas from the number of those which are to be found round Yezo, it would seem that they represented ordinary every-day dwelling places and not places which had been dug out in cases of emergency. They were in fact like the groups of regular dwelling places which are at the present day excavated in Kamschatka. The best proofs of elevation having taken place round Yedo bay appeared to be the *Pholas* borings which are to be seen at several places in the cliffs almost 10 feet above the present high-water mark—and this rise of land, taken in conjuction with the vast deposits of silt which are brought down by the various large rivers which flow into the bay, would make the changes in coast line exceedingly rapid.

The meeting was then adjourned.

HIDÉYOSHI AND THE SATSUMA CLAN IN THE SIXTEENTH CENTURY.

By J. H. Gubbins.

[*Read December 9, 1879.*]

Nearly thirty years have elapsed since Japan emerged from the seclusion imposed upon her by her rulers, and opened her markets to foreign commerce. These years have witnessed changes of a magnitude which perhaps was scarcely contemplated by the innovators themselves. Although during this period much has been learnt of the present condition of the Japanese nation, it is doubtful if we know much more of its past history than was to be found in the chronicles of Dutch writers and the letters of Spanish and Portuguese missionaries. At the present time, when the wave of foreign civilization has yet to run its course in Japan, and whatever smacks of antiquity is neglected in the common cry for something new, it is not surprising if the wide field which the history of past centuries presents to the native student is abandoned for more seductive researches in the direction of European literature and sciences. When the reaction sets in, it may be that Japan will give birth in her turn to a Macaulay, a Froude, or a Hume, and past events be set forth with that clearness and eloquence which these masters of historical narrative have achieved. Until then, however, the task of tracing back effects to their causes, and unravelling the tangled skein of Japanese history, must be no light one. For, unfortunately, native works claiming to be histories of Japan, to which we are referred for information, are singularly barren of those details which are essential to an intelligent appreciation of the course of events. They are more properly chronological records, in which great facts and events are noted in the exact order in which they happened, without comment

or explanation of any kind. And when we consider that the two main qualities by which the merit of a book in former days was determined, and by which the writer was therefore influenced in the composition of his work, were elegance of diction and accuracy of detail, we cannot be surprised when we hear of events but learn nothing of the cause, and read in monotonous order of the births, accessions, and deaths of emperors; of battles, sieges, and startling occurrences, without acquiring any knowledge of the minor links in the great chain of events which have in reality a deeper interest for after generations of readers. The writers of these works had in their minds as they wrote two ideas upon which they worked, to the exclusion of everything else,—namely, that Japan was a great empire, ruled by one sovereign, and that the governing dynasty had preserved, during a period extending over 2000 years, that unbroken succession of which every Japanese is, or professes to be, proud. They overlooked the fact, so very patent to us now, that though Japan was theoretically under one sovereign, it was practically divided into many petty states, each with its own history; and that just as in the science of medicine a knowledge of anatomy is indispensable to the right understanding of the human frame and its various functions, so the progress of events in each province and clan had its influence upon the history of the empire, and was in fact inseparably connected with it.

To give one instance from many,—"Japanese histories" tell us of the introduction of Christianity at a certain date into Kiushiu, but of the causes which led to its adoption, assisted its development, and finally brought about its proscription, we hear nothing whatever.

Fortunately, however, the information thus wanting in Japanese histories is supplied by another class of works, of which the *Heike Monogatari*, the *Gempei-seisuiki*, the *Nihonguaishi-hô*, the *Taikôki*, *Tokugawaki*, etc., are prominent instances. The number of these books is happily large. They are all more or less local in character, supplying details respecting particular clans, families, or provinces, or the subjects treated of have a special bearing on certain episodes in Japanese history which one looks for in vain among works of greater literary pretensions. They suffer by comparison with so-called histories of Japan, inasmuch as the authors have been led by interested motives to accept for facts circumstances which have a high colouring of romance, but it

is a question if they do not gain more by supplying those very details in the history of the times which cannot be found elsewhere. To a student of Japanese history they are invaluable, for it is only by a careful study of each clan and its relation to the central government that we can form a correct judgment of past events.

The subject of the present paper,—the struggle for supremacy between Hidéyoshi and the Satsuma Clan in the sixteenth century, has been overlooked by a recent[1] writer on Japan, for it finds no place in his list of Hidéyoshi's enterprises. Yet in its bearing on the history of the period it can only be regarded as an event of the first importance. The position of Satsuma has always been one of peculiar interest. Until the year before last she was an *imperium in imperio*. It is the object of this paper to shew briefly how high was the position she held three centuries ago, and how her power was then checked, although through motives of policy the position of the clan was left practically unassailed.

Before proceeding to give an account of Hidéyoshi's campaign, it may be interesting to go back a little, and beginning with a short sketch of earlier events, shew the causes which brought upon the Satsuma Clan the displeasure of the government at Kiyôto. And we cannot begin this retrospect better than in the words of a historical romance entitled "Toyotomi Chinsei Gunki"—(an account of the conquest of the western Provinces by Toyotomi Hidéyoshi).

"Of all the wide space under heaven there is no corner, however small, which does not belong to the Sovereign. Therefore everything that breathes the breath of life is under an obligation to the Emperor. From the earliest times there have always been evil persons who have disobeyed the Imperial commands, and have created disturbances in the State; but thanks to the divine origin of this land of ours, their machinations have come to naught. During eighty generations of Emperors, from Jimmu Tennô downwards, the sixty odd provinces of Japan were governed by *kugé* (Court nobles), who were the channels through which the Emperor's commands were transmitted to the people, and revolts were put down by the troops who guarded the palace. But the administration of the *kugé* was too mild, and from time to time those people who lived in remote districts, mistaking the gentleness of

[1] Griffis.

the hand which ruled them for weakness, rebelled against the Imperial mandates and raised insurrections, thus violating the peace of the realm. In this way the rival Houses of Minamoto and Taira maintained a civil war during the periods of *Hôgen* and *Heiji* [A. D. 1256], and the feud continued until Yoritomo's family finally defeated the Taira, and restored tranquillity to the country. In return for his services he received the title of *Nihon sotsui hoshi*, and the government of Japan from that time may be said to have passed into the hands of the military class which he founded [A.D. 1192]. Yoritomo, as commander-in-chief of the military forces, ruled with an iron hand, and every province submitted to his sway."

For the next 150 years the administrative power was nominally in the hands of Yoritomo's descendants, but it was wielded by members of the Hôjô family, who were called *Shôgun no Shikken* (or Chief Adviser to the *Shôgun*). On the overthrow of the 9th of the line (A. D. 1333), Takatoki, the government of the country reverted to the Emperor and the *kugé*. But only for a short time. As one of the results of the battle of the Minato-gawa, the Shôgunate was reëstablished under Ashikaga Takauji, and with its revival the military class secured a fresh hold upon the country, which lasted until modern times.

It was of course necessary in those turbulent times for the maintenance of peace that the Shôgun should be a man of determination and ability, and since Yoshimasa, the 8th of the Ashikaga Shôguns, possessed neither judgment nor firmness, the result was the outbreak of another disastrous civil war (A.D. 1467) known as the "*Ônin no Ran*." It commenced in a private feud between the *Kwan-riyô*, or Crown Advisers, but little by little other families were drawn into the quarrel on one side or the other, animated by personal pique or hereditary jealousy, and ultimately these civil troubles lasted for a whole century.

For this state of anarchy the feudal system in itself was not to blame. The evil lay in the conditions under which it existed. The jealous sanctity in which the Emperor was enveloped had the effect of diminishing the direct influence of the Sovereign upon the administration. Other causes which operated in the same direction may be found in the disintegrating effects of the constant struggle for supremacy between two powerful religions, in the notorious weakness of the Court,

and in the narrow sphere of action to which the Shôgunate was limited, not to speak of lesser causes, such as defective communication, local differences of dialect, and jealousies between the old and new aristocracy. Naturally, under such conditions the feudal system was nourished and maintained in growing splendour long after it had ceased to be of practical utility to the country. It is the fashion for modern writers, especially Japanese, to join in a common outburst of indignation against feudalism, to which they appear to attribute all the misfortunes which have occurred to the people of Japan; but there is little doubt that in many ways it was of much benefit to the country at large. It was this system which made of Japan a nation of warriors, which brought civilization into the remotest parts of the country, and by promoting a spirit of rivalry between each clan and each province, gave birth to that artistic taste and mechanical genius which have secured to Japan, in the case of certain of her productions, a monopoly of the markets of the world. That feudalism had its dark side is obvious. While it existed Japan was as a house divided against itself. Civilization progressed by fits and starts; now one province and now another passed each other in the race for prominence; and while some, through contact with each other and the outside world, reached a high state of Oriental civilization, others again, less fortunate in position, remained in the "darkness of an untutored barbarism."

The provinces of Kiushiu were among the most favoured in Japan. Yielding in some respects to the provinces in the immediate neighbourhood of the capital, which were more fortunately placed for the growth of literature and the fine arts, in the advantages of climate, soil and situation, Kiushiu was second to none. In the dim twilight of early history, the settlers in Japan come before us associated with the province of Hiuga; it was the same province which saw the departure of the expedition under the command of the legendary hero Jimmu Tennô, which landed in Settsu and established its headquarters at Kashiwara in Yamato; and when we quit the uncertain region of romance and come down to the surer foothold of later historical fact, it is Kiushiu again which, first by means of commerce and secondly through the medium of Christian missionaries, was brought into contact with the western world long before the rest of the country.

The advantages which Kiushiu thus early secured have left their mark in history. Her civilization was developed earlier, her customs bore the stamp of a clearer individuality, her clans were better organized, and their chiefs gifted with more enterprise than any other part of Japan, whether we take the Chiugoku, the Gokinai or the Kwantô.

And as time went on and the spirit of feudalism worked its way throughout every corner of the land, leavening the national character and customs, this individuality grew more marked, and the distinction between a native of Kiushiu and a northerner became more and more clearly defined, until it found expression in the popular saying that a Satsuma man is first a Satsuma man and then a Japanese.

During this period of misgovernment or rather no government at all, anarchy reigned every where, and Kiushiu was no exception to the rest of Japan. Each clan was up in arms against its neighbour; the aggrandisement of one was the signal for a coalition among its rivals, and in the prosecution of these feuds little magnanimity was shown. They were carried out to the bitter end, with the result that not unfrequently a noble family which had owned wide acres for many a long year was entirely exterminated. "It seemed," says the author above quoted, speaking of this state of things, "as if they in their mad eagerness for strife were contending as to which should quickest disappear, as the dew on the morning grass. Kiushiu was one wide field of disturbance, and a great wail went up to Heaven from the unhappy provinces of the southern island.

But circumstances create the men to deal with them, and Japan found such men in Hidéyoshi and his predecessor Nobunaga. When in A. D. 1583 the former succeeded the latter in the post of *Kambaku*, he found that the centralizing policy which he advocated had already been inaugurated, and that the blow dealt by his predecessor at the Buddhist priesthood had at all events removed one obstacle from his path. His military talent had contributed in no small degree to Nobunaga's success, and it now served him in good stead for the accomplishment of his own designs. With astonishing rapidity he overcame all resistance, being doubtless aided in the case of the more northern provinces by the coöperation of Iyéyasu, who was already master of a great portion of the Kwantô. Some local chieftains he reduced by force;

others, more powerful, he conciliated, and thus in a few short years, by a combination of tact and military skill, he succeeded in enforcing the central authority everywhere on the main island. He then prepared to extend his policy to Kiushiu.

The state of affairs there was this. Three powerful nobles, Riuzôji Masaiyé, Prince of Hizen; Ôtomo Yoshishigé, Prince of Bungo; and Shimadzu Yoshihisa, who was the head of the Satsuma Clan, divided the island between them. There were of course several smaller chieftains, each with his territory, his castles, and his own feudal retainers; but these, without an exception, held their lands at the pleasure of one or other of the three prominent nobles, and were bound to help their patrons with money and men in case of need.

The first to obtain a commanding position in Kiushiu was the family of Ôtomo. Tradition relates that the founder of the line was a natural son of Yoritomo, by a mistress who was the daughter of a man of gentle birth named Ôtomo Tsunéiyé. The boy took the surname of his maternal grandfather, and was known as Ôtomo Ichihoshi. At the age of seven he was attached to the suite of Yoritomo, and was fortunate enough to attract his master's notice by his coolness and courage on the occasion of a riot which occurred one night during a campaign. He rapidly rose in the esteem of Yoritomo, and after he reached man's estate his distinguished services in various military expeditions earned him, in 1193, the appointment of Governor of Bungo and Buzen, with the title of Sakon Shôgen. From this time he was known as Ôtomo Yoshinawo. We hear little of the Ôtomo till the civil war, in which two courts with rival emperors were established. In these dissensions the reigning prince Sadamuné took the side of the king-maker Ashikaga Takauji, and was with the latter in his successful march on Kiyôto and the decisive battle of the Minato-gawa.

To their connection with the victorious party in the State it is probable that the Ôtomo owed the foundation of their future greatness. Under Chikäo, the grandson of Sadamuné, who according to the records of the Ôtomo appears to have combined the abilities of an administrator with military genius, the territory of the Ôtomo was greatly increased, and before he died Chikäo received the title of Tsukushi[2] no Tandai or

[2] Ancient name for Chikuzen and Chikugo.

Governor of the Provinces of Chikuzen and Chikugo, which he held in addition to Buzen and Bungo.

During the next hundred and fifty years the position of the clan deteriorated. The Barons of the tributary fiefs in Chikuzen and Chikugo took advantage of the want of energy in the Ôtomo chiefs to assert their independence; and little by little the territory which had been won by Chikäo went out of the clan's grasp, and reverted to its original possessors. The domestic relations of the family were also not altogether happy. The question of succession in the principality was frequently the subject of fierce contention, and on two occasions the chief of the family fell by the hand of his son.

A revival of military energy took place in the middle of the sixteenth century under Gîkwan, whose son led the Ôtomo arms to success in Higo, but the prince's wish to disinherit Yoshishigé, the rightful heir, in favor of a child by a favorite mistress, led to another tragedy in the history of the clan. Two of the principal retainers of the Ôtomo, who sided with the eldest son, resolved that this injustice should not be done, and one night they forced their way into the prince's sleeping apartments and murdered him. His mistress and the boy whom he wished to make his successor were killed at the same time.

Ôtomo Yoshishigé,[8] whom this act placed at the head of the clan in A.D. 1550, soon shewed proof of great energy. Desirous of emulating the deeds of his ancestor Chikäo, he was soon engaged in a series of struggles with other nobles in Kiushiu, and with the celebrated Môri Motonari, the Prince of Chôshiu, on the main land. In these he was almost invariably successful. Môri's repeated invasions of the Ôtomo territory were repulsed with great loss, and he was defeated signally in three pitched battles. Riuzôji in Hizen met with no better success. His advance in coöperation with Môri was ignominiously checked, and he had to sign an inglorious peace with the Ôtomo Generals in his own dominions. The rebellious vassal chiefs in other provinces threw them-

[8] Yoshishigé is the Prince of Bungo alluded to in the works of Christian missionaries on Japan as Civandono. His influence in Kiushiu was clearly one of the causes of the rapid spread of Christianity, as that of Satsuma was associated with its decline.

selves on the clêmency of Yoshishigé, and by the year 1578 the territory of the clan was as great as it had ever been, and it held the first position in Kiushiu.

From this high position the fall of the Ôtomo was sudden. During the last few years of their power a hostile clan in the south had quietly been working its way to the fore. Its strength was now to be shewn. A long and successful campaign against the neighbouring prince of Hiuga had enabled the Satsuma Clan to make gradual encroachments on the southern frontier of its rival, and in the autumn of 1578, the same year which saw the Ôtomo family at the height of its power, a rapid and victorious inroad had carried the Satsuma Generals to a point within 40 miles of the Bungo border. The Ôtomo chief hurried to the assistance of his ally at the head of an army of 70,000 men, and met the invaders near the Mimi-gawa. In the long-contested battle which ensued,—lasting the greater part of two days,—the Satsuma troops were completely victorious, and Ôtomo Yoshishigé barely escaped with his life and the remnant of his army. From this blow the family never recovered.

The tradition which gives the same illustrious descent to the founder of the House of Shimadzu as to the first prince of the Ôtomo, pointing to Yoritomo as their direct ancestor, is too well known to quote at length here. According to this story Yoritomo, when a captive in the power of the rival House of Taira, formed an attachment to the sister of one of his guardians. Their connection was discovered, and the girl, escaping with her life owing to the tender heart of the retainer who had been ordered to kill her, found her way into the province of Settsu, where in the shadow of the shrine at Sumiyoshi, she gave birth to a son. In the year 1193 this son was appointed Governor of Satsuma, and three years later settled at Shutsu-yei-zan, whence he subsequently removed to Kagoshima, which became the Satsuma Capital from that time.

It is not until the latter part of the sixteenth century that the Shimadzu family appear prominently in history. Up to that time a succession of family feuds prevented the display of that spirit of restless aggression which subsequently became the principal characteristic of the clan, and the territories of the Shimadzu were limited to the one province

of Satsuma. But in 1552, under Shimadzu Takahisa, the affairs of the province became settled, and four years later the clan embarked on the rapid career of conquest which made it finally master of Kiushiu. In 1556 Ôsumi was attacked and quickly annexed. This advance of the Satsuma frontier brought it to the borders of Itô Yoshisuké, whose ancestors had held the greater part of Hiuga since the time of Yoritomo. It was not long before a border quarrel arose, which was the beginning of a long struggle between the two chieftains, in the course of which now one and now the other held the upper hand.

In 1564 Shimadzu Takahisa received the title of Mutsu no Kami. Seven years later he died and was succeeded by his son Yoshihisa, who led the clan in the struggle against Hidéyoshi. Following his father's policy, Yoshihisa devoted himself entirely to increasing the military strength of the clan. For 15 years his father Takahisa had fought with Itô in Hiuga without any very decisive result except the gradual extension of the Satsuma frontier. Under Yoshihisa the feud was prolonged for seven years more,—each of those years seeing the increase of the Satsuma power,—until in 1578 the defeat of the allied forces of Ôtomo Yoshishigé and Itô Yoshisuké, in the battle of Mimi-gawa, placed the Shimadzu in undisputed possession of Hiuga. Elated by this success, he extended his operations to Higo and Hizen, and it became apparent that he aimed at nothing less than the conquest of the whole of Kiushiu. The chieftain who opposed him in these provinces was Riuzôji Takanobu, who at that time owned the greater part of Hizen and Higo. He was no match for Shimadzu Yoshihisa, and after a five years' contest he had lost his possessions in Higo and was driven to act on the defensive in his own province. In 1584, Shimadzu having secured an ally in Arima Yoshidzumi, Chief of the district of Shimabara in the south of Hizen, sent an expedition against Riuzôji under the command of his brother Iyéhisa. The expedition landed at Sukawa-ura and marched to Shimabara. Here it was attacked by Riuzôji with a force of 30,000 men. In the battle which ensued Riuzôji was killed and his army dispersed. No obstacle then remained to check the progress of the Satsuma Chief, and his armies overran every province in Kiushiu except Hizen, where, however, he had allies.

The rapidity with which Satsuma rose to this position in Kiushiu

is surprising. In 1555 the territories of the clan consisted of the single province of Satsuma. Thirty years later, when Hidéyoshi first prepared to move against the Satsuma Clan, the Shimadzu were, as stated in the proud boast of their chief, the lords of eight provinces.

Of the origin of the clan of which Riuzôji Takanobu was the head, little is to be found in the records which treat of the Kiushiu families. The head castle of the family was Saga, in the north-east of Hizen, and Riuzôji Takanobu first comes into notice as an ally of Môri Motonari in his attacks on the Princes of Bungo. We read of him also as constantly fighting with the Ôtomo for the possession of the province of Higo. When Shimadzu Yoshihisa had crushed the power of the Ôtomo and annexed Hiuga, he found that a formidable rival had established himself on his northern border. This was Riuzôji Takanobu, who had taken advantage of the Satsuma army being occupied on its eastern frontier to establish himself in the greater part of Higo. His defeat and death in the battle of Shimabara has been already mentioned, and the first act of his son Masaiyé, a prince of little energy, was to apply to Hidéyoshi for assistance.

The weakness of the Court had become, during a century of misrule, such an acknowledged fact that it was not surprising if the Kiushiu nobles should resent any exercise of central authority on the part of the government at Kiyôto. A few years before the ascendancy of Satsuma, and while yet the balance of power was evenly divided, their feelings had been put to the proof by the arrival of a herald sent by Hidéyoshi with the double object of making a display of his authority and of obtaining a formal recognition of their allegiance to the Crown. The summons met with little response from the sturdy Barons of the south. Those who felt least independent contented themselves with expressing a general sense of their attachment to the Emperor, while questioning the authority of Hidéyoshi to issue orders to them;—and some, among whom was the Satsuma Chief, sent no answer whatever to the message. If Hidéyoshi was mortified at the result of his mission, he did not show it. He waited, and before long circumstances assisted him in the attainment of his objects in a way which perhaps he may have anticipated.

For, as we have seen, a few years changed the aspect of things

altogether. Instead of three masters in Kiushiu there was one. Satsuma was triumphant everywhere, and since her victories in the battles of Mimi-gawa and Shimabara the absorption of the whole of Kiushiu in the Satsuma territory appeared only a question of time. Riuzôji Masaiyé had succeeded his father in Hizen, and the abdication of Ôtomo Yoshishigé raised his son Yoshimuné to the leadership of that clan. In the opinion of these two chiefs the condition of affairs was desperate, and without hesitation they snatched eagerly at the prospect of assistance which might reach them from a powerful quarter and appealed for aid to Hidéyoshi.

Warned by his previous failure, the latter's first step was to ascertain the feelings of the various chieftains in Kiushiu, and agents for intrigue, empowered to treat with those Barons who were well disposed towards the court, were secretly distributed throughout the northern provinces of the island. Their overtures were favorably received in many places, for the supremacy of Satsuma was viewed with disfavour by the majority of the lesser nobles, prominent amongst whom were Tachibana Sakon Shôgen, a leading noble in Chikugo, and Akidzuki Tanézané, who played an important part in the campaign which was to follow. They were related by no ties of blood to the Satsuma men, and owned to no dearer connection than that of having perhaps at some time or other fought side by side in a border feud. Their independence was reduced to a mere shadow. For some time past they themselves, their vassals, and all that was theirs had been at the beck and call of one of the three dominant clans. And now they were in daily fear of seeing their broad acres incorporated with Satsuma, and their revenues diverted into her exchequer. So far, the reports of Hidéyoshi's emissaries were encouraging;—he might, he learnt, look for allies, by no means contemptible in their way, whose fidelity was guaranteed partly by actual fear, partly by feelings of clan jealousy. But he was not disposed to act hastily. The position of Satsuma was undeniably strong. Ôsumi and Hiuga were hers by right of previous conquest and absorption; she had allies in Hizen; and her armies, flushed with success, were then overrunning Chikuzen, Chikugo, Bungo, Buzen and Higo.

Hidéyoshi therefore, with his usual caution, hesitated before

commencing hostilities, and decided to send a second summons to the Satsuma Prince, which should be in the form of an ultimatum. For the bearer of the message he selected Sengoku Gombei Hidéhisa, of whom we know little beyond the fact that he was of good family and owned estates in the Province of Iyo, in Shikoku.

The visit of this special envoy to the Satsuma Capital, and his interview with the chief of the southern clan forms in itself a highly dramatic incident. The limits of a paper, however, forbid more than a brief allusion to it. The letter delivered by Sengoku condemned the obstinacy of Shimadzu in refusing to recognize the authority of the Court at Kiyôto, dwelt in forcible terms on the lamentable state to which the prolonged civil war had reduced Kiushiu, and called upon the Satsuma leader to withdraw his troops at once, and having made peace on suitable terms with his opponents, to visit Kiyôto and seek new patents from the Emperor for his territories. Hidéyoshi offered, on condition of Shimadzu complying with his summons, to confirm him in possession of Satsuma and Ôsumi, and the half of Hiuga, Higo and Chikugo. The answer of the Prince was brutal and defiant. He tore up the missive handed to him by the envoy after hastily scanning its contents, and trampling it under his foot, confined himself to a verbal reply. In this he justified his own action on the ground that he had not been the first to provoke hostilities, refused to recognize in Hidéyoshi anything but an adventurer of low extraction, who had by questionable means attained a high position in the State quite incompatible with his merits, and declared his determination to consider no interests save those of his own clan and subjects, whose honor was in his keeping. Hidéyoshi's offer was dismissed with the remark that Satsuma had conquered eight provinces, and these she was determined to hold. For the substance of the answer Hidéyoshi was perhaps not unprepared; it may be questioned if he quite anticipated its rudeness. It reached him early in the summer of 1586, and both sides immediately prepared for the impending struggle, on which the future of Kiushiu depended.

Being alive to the importance of striking the first blow, and gaining what advantages he could secure before reinforcements from Hidéyoshi could take the field in sufficient numbers to render a more cautious

policy necessary, Shimadzu divided his army into two large forces. One of these, 50,000 strong, under the joint leadership of Shimadzu Dzusho no Kami and Ijiuin Tadamuné, entered Chikuzen. The other was intended to complete the conquest of Bungo, and was formed into three separate divisions. The first division, composed of 15,000 men, commanded by the Prince in person, moved on Bungo by way of Hiuga, while the other two advanced on the threatened province by way of Higo. Of the two latter, one was evidently intended to act merely as an advanced guard to the main body, for it consisted of only 1300 men, led by the brother of the Prince, Shimadzu Nakatsukasa Taiyu Iyéshisa. The main army numbered no less than 67,000 men, and was commanded by Shimadzu Yoshihiro, the heir to the principality, assisted by Niiro Musashi no Kami, and other generals of repute.

Hidéyoshi on his side was not idle. He recognized that he had a powerful enemy to deal with, and could not afford to risk the chance of defeat. Accordingly he caused instructions to be issued to 37 provinces to supply troops at Ôsaka by the first month of the following year, and commenced preparations for the ensuing campaign on a gigantic scale. He could the more easily do this, as his position in the State was second to none, and by the end of the year he had reached the summit of his ambition as a statesman, and was nominated Prime Minister, holding this post conjointly with that of Regent. As it was necessary, however, for some time to elapse before such a large army as he contemplated forming could take the field, he met the urgent calls for assistance from Hizen and Bungo by sending orders to Môri Terumoto, the Prince of Chôshiu, to proceed immediately to the relief of the invaded provinces, and learning soon afterwards that Môri's two generals, Kobayakawa and Kikkawa, had as much as they could do to hold their own on the northern Chikuzen frontier, Hidéyoshi sent word to Nobuchika, the son of Chôsokabé Motochika, Prince of Tosa, to hasten at once to the succour of Ôtomo Yoshimuné in Bungo.

The Satsuma army operating in Chikuzen had little difficulty in reducing the Castle of Iwaya; and moving westwards rapidly, invested Tachibanayama, the chief castle of the province, which was defended by the Prince's eldest son. The garrison was hard pressed, and the generals of the relieving force, finding that they could not risk a pitched

battle with the powerful Satsuma army before them, had recourse to stratagem. A letter addressed to the commander of the garrison was written, stating that both Môri and Hidéyoshi had taken the field at the head of large armies, and might be expected to arrive at any moment, and the bearer was instructed to allow himself to be captured by the enemy, but to get as near the castle as possible. The ruse succeeded. The letter was intercepted, and the Satsuma leaders, fearing for the safety of their communications, hastily raised the siege, and withdrew into Higo, within reach of castles friendly to the Satsuma cause.

But in Bungo the Satsuma operations were more successful. The invaders, moving in the three divisions already mentioned, carried all before them. In the autumn Ôtomo was defeated when endeavouring to relieve the Castle of Toshimitsu, and the Satsuma troops pushing on, laid siege to Funai, the capital of the province. This, then, was the situation of affairs in Bungo, when towards the end of the year (1586) the reinforcements from Tosa arrived at the port of Usuki. The Tosa prince commanded in person, being unwilling to entrust the charge of so important an expedition to his son. Ôtomo hurried to meet him, and a council of war was immediately held. In spite of his recent defeat, the Bungo chief was for taking the offensive, and in this view he was supported by Sengoku Gombei Hidéhisa the late envoy to the Satsuma capital, who, burning to revenge himself for the slights he had then received, had been at his earnest request attached to the expedition in the capacity of military adviser from the court. His action was in direct opposition to the instructions given him by Hidéyoshi, which were that he was to throw all his weight against a general engagement being hazarded in the critical position of affairs. These opinions also found a supporter in another General named Miyoshi Masayasu Shimodzuké no Kami, who, influenced by the memory of former feuds with Chôsokabé, took a pleasure in thwarting his wishes. The Tosa leader was thus alone in his dissent. He did all he could in the way of argument to prove to the others that the only course to be pursued was to act on the defensive, and keeping their forces concentrated, endeavour to hold the Satsuma army in check until Môri, or Hidéyoshi, could effect a junction with them. But his warning fell on deaf ears, and with reluctance he prepared to carry out to the

best of his ability the rash decision of the council. This was that the relief of the Castle of Toshimitsu, in which Ôtomo had failed only two months before, should again be attempted.

Since their entry into Bungo the distribution of the Satsuma forces had undergone some alteration. The advanced guard of 1,300 men under Shimadzu Iyéhisa, constituting the 2nd division, had joined the 3rd division, and half of the latter, which formed, as has already been shown, the main body of the army, had been sent back to protect the communications of the invading forces. The division therefore actually besieging Yoshimitsu was not more than 30,000 strong. It was commanded by Iyéhisa Yoshihiro and Niiro Musashi no Kami. Through their scouts the Generals in the lines before Yoshimitsu heard of the arrival of reinforcements from Tosa, and of the intention of the allies to march at once to the relief of the castle. They therefore redoubled their efforts, and Yoshimitsu was taken by storm; so when the allies, 20,000 strong, arrived on the banks of the Tosu-gawa, which crossed their line of march at a point within view of the castle, the Satsuma pennons waving on its battlements told them that they had come too late. Chôsokabé at once consulted a retreat, but he was overruled, and it was decided to offer battle the next day.

The battle of Tosu-gawa, as it may be called, was hardly contested. On the left of the allies were the Bungo forces, while the right was occupied by the Tosa contingent. The Satsuma troops appear to have crossed the river and attacked the allies, and by feigning a retreat they drew the left wing, commanded by Ôtomo and Sengoku, after them. Having drawn them some distance in pursuit, they turned, and after a sharp struggle completely routed them, and drove them back in disorder upon the right wing. The latter had held its ground during the whole day, but on the defeat of the left wing the Tosa leader was obliged to give the signal for retreat, and in carrying out this movement his son Nobuchika was killed, while he himself only escaped with a small remnant of his men. After this defeat Ôtomo fled from Bungo, and the province was thus left at the mercy of the invaders.

We thus reach the end of the year 1586, when Hidéyoshi's preparations were approaching completion. The call for troops from 37 provinces was promptly answered, and at the appointed time 150,000

men of all arms had assembled at Ôsaka. Provisions for twice this number and fodder for 20,000 horses had been already stored at Kokura in Buzen, the point where a part of the vast army was to cross the straits, and whence supplies would be drawn during the campaign; and post-houses for convenience of transport had been established along the whole route from Kiyôto to Shimonoseki. Everything being in readiness, Hidénaga, Hidéyoshi's brother, was sent in advance with the vanguard of 60,000 men, who consisted of levies drawn from Yamato, Kawachi, Idzumo, Awa, Sanuki, Mino, Tajima and Inaba. This force set sail from Ôsaka on the 7th January, 1587, and arrived at Yunoshima in Bungo on the 19th of the same month. There it was shortly joined by the two Chôshiu Generals, Kobayakawa and Kikkawa, with 30,000 men, including a contingent furnished by Ukéda Hidéiyé, lord of the three provinces of Bizen, Bichiu and Mimasaka, and the united forces, numbering not less than 90,000 men, advanced on Funai.

Shimadzu appears to have shown no hesitation as to the course to be adopted. Probably the news of the extensive preparations which were being made by Hidéyoshi had reached him, for otherwise it is difficult to understand why he should have retreated before an enemy numerically inferior, abandoning his conquests in Bungo and elsewhere without a struggle. However this may be, he at once issued orders for a general retreat of all the Satsuma forces. Leaving his brother Iyéhisa to bring up the rear, he withdrew his army rapidly from Bungo, and almost before the allies knew of his having left Funai, he was already across the borders of Hiuga on his return march to Kagoshima.

II.

Hidénaga, on his arrival at Funai, heard of the retreat of the Satsuma army, and immediately hurried in pursuit. Crossing the Hiuga border unopposed, he overtook the rear-guard of the Satsuma forces under Shimadzu Iyéhisa close to the river Hira-kawa. On the other side of the stream was a castle of the same name held by a Satsuma garrison. It was late in the afternoon when the southern army, only 10,000 strong, observed the approach of the allies, and the General at once moved his troops down to the river in order to contest the passage. But the Regent's brother was not disposed to risk an

engagement in which the advantage was so palpably on the side of the enemy, and he accordingly encamped on his side of the stream and waited for the morning. Stung by the taunts of the Satsuma men, who dared them to cross the river and shew what mettle they were made of, the young soldiers of the Imperialist army were solaced as they bivouacked that night by the thought that early on the following morning they would be able to cross swords with the foe. But they were baulked of their expectation. When day broke no enemy was in sight. Shimadzu Iyéhisa had withdrawn his troops under cover of the darkness, and was far on the road to Sadowara. The news of the enemy's retreat soon spread, and the Imperialists, indignant at what they conceived to be a trick played upon them, broke up their camp in hot haste and poured across the river in eager pursuit. About midday an advanced guard of 800 cavalry came up with the retiring enemy at a place called Nokiguchi. A brisk engagement ensued, in which the attacking party secured some advantage, taking several prisoners. The main body of the Satsuma army, however, maintained an orderly retreat, and continued its march to Sadowara without further molestation from the pursuing force.

Details are wanting of the exact route taken by the Imperialists after leaving Funai, but the proximity of that town to the coast, taken in connection with the absence of good roads at that time, particularly in such a mountainous district as Hiuga, and the neccessity for a large force to avail itself of the best and most convenient routes, suggests the probability that the Satsuma army was retiring before the Imperialists along the high road which leads from the Satsuma territory along the sea-coast through Ôsumi and Hiuga, then traversing the provinces of Bungo and Buzen, terminates at Kokura on the southern shore of the Inland Sea. When only 18 miles on the road, the invading army found an inconvenient obstacle to its further advance in the shape of the Castle of Takashiro, which stood about 10 miles off the main road. The natural defences of this place were great, and it had been specially garrisoned and provisioned by the Satsuma Prince as he fell back on Kagoshima with his main army. Instead of detaching a force sufficient to mask this fortress, Hidénaga, contrary to the advice of several of his generals,—who argued that the danger of leaving a hostile stronghold

in the rear would be more than counterbalanced by the advantage to be gained by a rapid advance on the Satsuma frontier,—sat down before it with his whole army and commenced a regular siege. The garrison made a stubborn defence, but the odds against them were great, and towers having been erected by the besiegers from which they could enfilade the ramparts, the defenders were forced to abandon the outer circle of fortifications. But this advantage was all that the besiegers could gain. One day after a general assault which had failed, when both sides were equally exhausted, a strange courier rode into the Imperialist camp with a letter for Kuroda Yoshitaka, who was in command of a division posted on the south side of the castle, so as to guard the approaches from Sadowara. The letter was signed by Shimadzu Iyéhisa, and stated that he was marching to the relief of Takashiro, and on the 23rd instant would offer battle to the allies. Hidénaga, on being informed of the challenge, did not consider it advisable to employ his whole army in meeting Shimadzu's threatened attack. He therefore told off 60,000 men for this duty, and remained himself with the remaining 30,000 in the lines before Takashiro. He also caused it to be distinctly understood that on no account were the two divisions to assist each other. Not being acquainted with the exact strength of the Satsuma army, the leaders of the troops selected to oppose Shimadzu took every means to fortify their position. Long rows of entrenchments were thrown up, trees were felled by the score, and the fallen trunks disposed so as to form barricades. Within these were erected towers from which musketeers could play upon the enemy's ranks while yet at a distance from the entrenchments.

The Satsuma men, by their courage, physique, and dash, had inspired a wholesome dread in the minds of the mixed levies on the Imperialist side, and the leader of these latter felt that while they could individually rely on the devotion of their own men, the army generally lacked that mutual sympathy and confidence which it was desirable should exist in the face of the military prestige of the enemy. Despite, therefore, the almost certain knowledge of superior strength, it was with grave doubts as to the issue that the Kiyôto forces awaited in their entrenchments the attack which was hourly expected. We hear of Môri, Prince of Chôshiu, taking part in the siege of Takashiro,

though when he joined Hidénaga is not quite clear. He appears to have shared the anxiety of the Imperialist leaders, for on the evening of the engagement he secretly reinforced Kuroda Yoshitaka with a contingent of his own troops.

At daybreak on the appointed day the vanguard of the enemy was seen approaching from the direction of Sadowara. Iyéhisa had received reinforcements since his retreat from the Hira-kawa, and he was now at the head of 30,000 men. His plan of attack was as follows:—First came a picked force of 3,000 swordsmen, who were directed to demolish the entrenchments. Behind these was stationed a body of cavalry in readiness to charge over the barricades the moment that practicable breaches had been made. In the rear of the cavalry the main body of the army was drawn up, while a force of 1,000 men was sent to assail the Imperialists in the rear. These dispositions were rapidly made, and the vanguard advanced to the attack with the usual Satsuma *élan*. At one point in the entrenchments the Satsuma leaders had recourse to a stratagem which was probably not uncommonly resorted to in those days, and reminds one of the tactics of the North American Indians. While busily engaged in repelling their assailants, the attention of the defenders was attracted by the figure of a man who, seated on a chair, appeared to be directing the movements of the attacking party. Concluding that this must be one of the Satsuma Generals, a hot fire was proued on the spot. Five times was the object of this concentrated fire shot off its seat, and each time its place was promptly filled. The marksmen were congratulating each other upon the accuracy of their aim, when one, keener-sighted than the rest, discovered that the supposed General was nothing more than a straw figure placed in a conspicuous position in order to draw upon it the fire of the defenders. Meanwhile the assailants had effected a large breach in the entrenchments, and feigning a retreat they made way for the cavalry, who dashed in and made themselves quickly masters of this portion of the line of entrenchments.

But in spite of the success of the Satsuma force at this point and elsewhere in the Imperialist positions where they had effected an entry, they were in the end worsted by a stratagem devised and executed by a young officer on the staff of Kuroda. At the head of 1,500 men he

made a rapid flank march so as to get between the Satsuma army and its line of communication with Sadowara, and all the way along his route he caused paper flags and streamers to be tied to the pine trees, allowing glimpses of horses' trappings to be seen here and there, so as to give the appearance, when seen from a distance, of an army on the march. So in the hour of their expected triumph, when the Imperialists were being gradually driven from their entrenchments, scouts came in in hot haste and reported to the Satsuma General that a large force of the enemy had outflanked them and was clearly on the march to Sadowara. Iyéhisa looked in the direction indicated, and saw what appeared to confirm his scouts' reports. Recognizing the danger of his position if he were surrounded and cut off from Sadowara, he decided not to pursue his success any further, and gave the signal for an instant retreat. He was suffered to withdraw unmolested for some distance, but as soon as it was seen that the retreat was made in earnest, the Imperialists dashed out of their entrenchments and charged furiously upon the retiring foe. At the same moment the Satsuma commander found himself assailed in the rear by the column whose successful execution of the stratagem above mentioned had turned the day against him. Despite his utmost efforts to retire in good order, he saw his troops gradually losing the steady conformation on which their safety depended. Outflanked, outnumbered, assailed in front and rear by an enemy whose strength was unknown, the retreat of the Satsuma army was only saved from becoming a rout by the gallant conduct of three chiefs named Ijiuin, Shirakawa, and Hirata. These brave fellows, seeing the confusion round them rapidly becoming worse, agreed to make a stand together, each with his band of devoted retainers. The leaders were the first to fall, but their followers, fired by their example, scorned to fly, and forming a half-circle round their fallen chiefs, prepared to dispute the ground inch by inch. Reading of the gallant stand made by these feudal retainers, we are reminded of the well-known description of the last fight on Flodden Field, where—

> "The stubborn spearmen still made good
> Their dark impenetrable wood
> Each stepping where his comrade stood
> The instant that he fell."

The long Satsuma blades did terrible execution, and for a time the advance of the enemy was checked. But the odds against them were enormous. As their ranks were thinned and the enemy closed in on all sides, there was soon no room for them to use their swords. So the last man went down, and the tide of pursuit rolled over the spot thus bravely contested. But the Satsuma army was saved. The short respite had been all that was required, and with ranks reformed the Satsuma leader retired in good order on Sadowara.

Details are wanting of the loss sustained by each side in this engagement, but it is a question if the Satsuma army lost many more men than the Imperialists. The first part of the engagement was decidedly in their favor, and man for man the southern swordsmen were more than a match for their opponents. Of the moral effect of the Imperialist victory there can be no doubt. To have proved that the southerners were not invincible was a great achievement, and the spirit of the allies rose in proportion as those of the Satsuma men fell.

After this repulse of the Satsuma army the Imperialist Generals again urged Hidénaga to follow up his success and march on Sadowara, but he refused to stir, alleging that his instructions were to wait until Hidéyoshi should take the field in Higo, when a simultaneous advance would be made on the Satsuma frontier. So the whole force reën-camped before the Castle of Takashiro and proceeded to starve out the garrison.

It was the 22nd of January before Hidéyoshi left Ôsaka with his main army of 130,000 men of all arms, and as such a large force could not travel quickly, he did not reach Shimonoseki (or Akamagaseki as it was then called and is sometimes yet) till the 17th February. On the 19th he crossed the straits to Kokura, where he stayed for four or five days. Here he appears to have held a sort of court, at which he received all the chieftains in Kiushiu who had declared against Satsuma, and here also Hidénaga and the other leaders of the Imperialist army in Hiuga came to meet him and report progress. Having assured himself of the loyalty of most of the chiefs of northern Kiushiu, Hidéyoshi broke up his camp and proceeded to carry out his plan of campaign. The Generals of distinction under him were Kato Kiyomasa, Gamo Ujisato, Fukushima Masanori, and Mayéda Yasutoshi, whose brother

Yoshiiyé had been left to watch over the affairs of the Government at Kiyôto, together with Tokugawa Iyéyasu, during the absence of Hidéyoshi. The position of Yasutoshi seems, therefore, to have been in a measure that of a hostage. There was also a strategist, Hori Hidémasa, whose duty was to arrange the military details of the march and the disposition of the various contingents of which the army was composed. The route to be followed led Hidéyoshi's army to the Chikuzen frontier. On the other side of the border lay a district hostile to the Imperialist cause. It was held by Akidzuki Tanézané, a chieftain of some mark in Kiushiu, who had been one of the first to ally himself with the Shimadzu family. Before the army had gone far beyond the border, it came to the Castle of Ganzékijô, occupied by a vassal of Akidzuki. This place not being of much importance, it was decided to leave a force to reduce it, while the main body moved on. But here a difficulty arose. None of the Generals would consent to be left behind for this duty. Accordingly lots were drawn, and resulted in the selection of Gamo Ujisato. The latter with a bad grace took up his position before the castle, and in a perfect samurai spirit he decided that it was no part of a gentleman's duty to sit down before a fortress and quietly blockade the garrison. He would therefore storm it; and having ascertained that the garrison was not composed entirely of fighting men, but included several villagers impressed into the service of the defenders, he led his men at once to the assault. After a sharp struggle the castle fell, and no quarter being asked or given, the garrison was put to the sword. Three only escaped to carry the tidings to Akidzuki, who was in the castle of Ôguma carefully watching the course of events. On hearing the news thus brought, Akidzuki was much startled, for he had calculated on the castle holding out at least for several days. His first thought was to surrender without striking a blow, and he justified such a course to himself on the grounds that he was not originally a vassal of Shimadzu, but only became so by force of circumstances. On further reflection, however, he decided to defer his action until he had had an opportunity of estimating Hidéyoshi's strength. He therefore made preparations to resist.

How well Hidéyoshi had informed himself of the state of affairs in Kiushiu and of the relations between the clans may be gathered from

the address which he issued to his Generals confidentially as he advanced on Akidzuki's stronghold. "In Akidzuki," he said, "we have to deal with a man of considerable weight in Kiushiu, and especially in the province of Chikuzen. In submitting to Shimadzu he only yielded to superior force, and accepted the situation. The Satsuma cause has in him, therefore, only a lukewarm adherent. We must take our measures accordingly, and it would be bad policy in us to attack him vigorously, for then he might be compelled to fight. Let us rather make a great display of our strength, and he will then doubtless submit without fighting."

These instructions were carefully followed. The army advanced on the Castle of Ôguma in an extended line, conches blowing and flags flying, and the defenders looking out over the plain and beholding nothing as far as the eye could see but the waving of banners and the gleam of armour, acknowledged that this was indeed a mighty host that had come up against them. Akidzuki and his son shared the general consternation, but to their surprise the large army whose approach was witnessed from the ramparts made no assault on the castle, but quietly encamped within bowshot of the walls. The same night Akidzuki evacuated Ôguma and retreated to another castle. Hidéyoshi forbade any pursuit, being confident that Akidzuki would shortly send in his submission. His opinion was justified by the result, for before two days had elapsed a herald arrived bearing Akidzuki's submission. An ancedote which savours strongly of romance, and is only one of a numerous class illustrating the genius of Hidéyoshi and his military exploits, is told in explanation of Akidzuki's sudden resolution to submit to Hidéyoshi. The latter, it is said, on entering Ôguma found that the defences had been only recently thrown up, the work having been done with such haste that the finishing coat of white plaster had not been placed on the walls. He at once gave orders to cover the outer defences with white paper, which at a distance had the appearance of stucco. Early the next morning a scout sent out by Akidzuki from the neighbouring castle to reconnoitre returned hurriedly and brought the astounding intelligence that the defences of Ôguma were nearly completed. He himself had seen hundreds of workmen busily engaged on the fortifications, and so rapidly had the work progressed that already

the whole of the outer defences had been plastered. Akidzuki was so thunderstruck at this proof of the energy of the Regent that he at once tendered his submission.

His surrender was accepted, and with the wise liberality which distinguished his action during the whole compaign, Hidéyoshi made only one condition,—namely, that Akidzuki Tanézané and his son should follow the vanguard of the army on its march to Satsuma. His policy may be judged by an address which he issued to the army after the march south had been continued, and in which he rebuked the over eagerness of the Imperialist leaders to have a brush with the enemy. "Shimadzu," so runs the address, "has never yet been hard pressed. Although many chiefs have submitted to us, there are still too many of his adherents in Kiushiu to permit of our advancing hastily on the southern strongholds. Let us proceed with caution, and concentrating our strength, add to it daily by winning over to our side those barons who are vassals of Shimadzu. Then when Satsuma stands alone, like a tree shorn of its leaves and branches, we will attack and destroy the root, and our task will be comparatively easy."

He accordingly remained for some time longer in Chikuzen, and the result of his negotiations with the local chieftains and samurai was a daily increase to his forces (among those who flocked to his standard being a contingent from the monastery of Hikozan[4]), and when he moved to Korazan in Chikugo his army had swelled to a total little short of 200,000 men. At Korazan, Akidzuki Tanézané proposed to Hidéyoshi that while the latter should stay there to rest his army, he should employ the interval in making a secret expedition to Higo and Hizen, where he would endeavour to gain adherents to Hidéyoshi's cause among the local samurai, and thus prepare the way for the advance of the army. He added weight to his proposal by pointing out that there was considerable disaffection towards Satsuma among the samurai of those provinces, who were only waiting for an opportunity to open negotiations with Hidéyoshi; they were as people who wished to cross a river but had no ferry-boat. Hidéyoshi was much struck with the proposal. The views put forward by Akidzuki were quite in

[4] Not marked in the maps.

accordance with his own policy, and in spite therefore of the urgent requests of his Generals, who sought to persuade him to order a general advance, he resolved to stay where he was and await the result of Akidzuki's mission.

Akidzuki lost no time in making his preparations, and set out for Hizen attended by an escort of 24 horsemen, leaving his son Tanénaga as a hostage in the camp at Korazan. In Hizen he easily effected the object of his journey. He found the samurai of two important districts, Matsu-ura in the north and Ômura in the south, favorably disposed to make common cause against Satsuma, and by his instructions delegates were at once sent to the camp at Korazan to settle the conditions of alliance with Hidéyoshi. In Higo it was quite a different matter. Here he had to encounter great difficulties, for the province was occupied by Satsuma in considerable force. It will be remembered that the army which had invaded Chikuzen retired into Higo when it gave way before the Chôshiu reinforcements which were sent to aid the Castle of Tachibana-yama. This army was now distributed in various places throughout the province, forming the garrisons of Mamibé, Aiko and other towns. The latter stronghold was held by Ijiuin Tadamuné, and the former by Niiro Musashi no Kami and Hayata Dewa no Kami, all three Generals of distinction in the Satsuma army. Rightly concluding that the movements of a well-known chieftain from another province could not be concealed from the army of occupation, especially at a time when the presence of an enemy on the border rendered the utmost vigilance necessary, Akidzuki resolved to take a bold course. Accordingly he proceeded at once to the Satsuma headquarters, and concealing the fact of his submission to Hidéyoshi, reported that the Castle of Akidzuki, the chief stronghold in his district, was being then besieged, and would surrender in a few days unless relieved. His hearers had no reason to doubt the sincerity of his representations, and the Chikuzen chief left, taking with him promises of speedy help to the beleaguered garrison. On his way back he opened negotiations with the local samurai of the districts through which the invading army would pass, and by dwelling on the irresistible strength of the vast host that would soon overrun Higo, and drawing comparisons unfavorable to the Satsuma rule, he succeeded in gaining many allies for Hidéyoshi.

Under the feudal system these local samurai played no insignificant part in the politics of Japan. It is easy to conceive that three centuries ago they formed a much larger proportion of the population than they do now, and were therefore a more important factor in the State. In those times of political disturbance, when the only right to possession was the power to hold, people had no inducements to adopt settled occupations, and the class of swashbucklers was naturally very numerous. Unable to maintain an independent position, these samurai were led by motives of self-preservation to attach themselves to the banner of some noble of the day. And as the fortunes of their patrons changed with the hour, when the ability to protect no longer existed they transferred their allegiance without hesitation to another quarter, and the master of to-day became the enemy of to-morrow. They had thus no fixed political bias, but were time-servers of necessity, always trimming so as to be on the winning side. This was the case in Kiushiu at the period of which we are speaking. The civil war which had raged for so long in the southern island saw these samurai continually changing their allegiance. As long as the Princes of Bungo and Hizen were able to hold their own against Shimadzu, they could always count on the assistance of several hundred blades wielded by men whom the guerilla warfare of the times had seasoned and inured to the hardships of a military campaign. But with the establishment of Satsuma supremacy these sworded gentry quickly deserted the fallen fortunes of their former patrons, and declared themselves vassals of the ruling powers of the day. During the short period that Kuishiu lay at the feet of Shimadzu, he had no more obsequious adherents than these local samurai, whose policy could so conveniently adapt itself to circumstances. But the arival of Hidéyoshi at the head of a powerful army, and the simultaneous retreat of the Satsuma forces were the signal for an immediate defection from the Satsuma cause. The Satsuma crest was hastily exchanged for the Imperial insignia, and the lately obedient vassals awaited with eagerness the arrival of the great force which was, to quote their own words, "to free them from the yoke so recently imposed."

When, therefore, Niīro and Ijiuin, believing the statements of Akidzuki, called upon the samurai of the various districts in the north of Higo to help

them raise the siege of the Castle of Akidzuki, few came forward in response to the appeal, and from most the astonishing reply was sent that the samurai in question were allies of the great General Hidéyoshi. Nor was this disaffection confined to one or two districts. Rumours of seditious movements reached them from all sides, and it needed no sagacity to perceive that at the first opportunity a general rising would take place against the Satsuma Clan. There was every reason, therefore, for the Generals to concentrate their forces while they were able to do so. This they did, and evacuating the two castles they had been holding up to that time, they fell back towards the Satsuma frontier. The movement was made none too soon, as the event proved. The samurai of the south of Hizen, anxious to shew zeal in the cause of their new ally, fitted out an expedition, and landing in Higo, laid seige to the town of Yatsushiro. The retreat of the Satsuma army was hastened by this news, and the Generals in command hurried to the relief of the garrison. On their march they were much harassed by bodies of Higo samurai, who rose in each district and village as soon as the Satsuma troops had left it. The garrison was relieved without difficulty, but the whole province was now up in arms against Satsuma, and in spite, therefore, of its strategical importance, Yatsushiro was abandoned and a general retreat became necessary. The army did not stop till it had reached Ôguchi and was well within the borders of its native province.

In the general rising against Satsuma among the samurai of Hizen and Higo, Hidéyoshi saw a proof of the success of Akidzuki's mission, and he accordingly gave orders for a general advance. Detaching two divisions under Fukushima Masanori and Katô Kiyomasa to reduce the two castles of Akaboshi and Koshiro, which still held out for Shimadzu, he made a rapid march with the main army to Yatsushiro, where he halted. Both castles were quickly taken, and the forces detached against them joined Hidéyoshi at Yatsushiro.

Fortune did not favor the Satsuma arms elsewhere. The Prince and his son Yoshihiro were with the main army in the south of Hiuga when the news of the blockade of Takashiro and the defeat of the force which had proceeded to its relief under Iyéhisa reached them. And soon after they learnt that the garrison of that castle, despairing of succour, had

surrendered. Under these circumstances there was nothing for it but to carry out their original plan, and they accordingly fell back on the capital, leaving Iyéhisa to establish himself in the Castle of Sadowara, and thus check the advance of the enemy through Hiuga. At Kagoshima more bad tidings awaited them, for they there heard of the withdrawal of the Satsuma army from Higo; and in view of the critical state of affairs, it was agreed that a general council of war should be held to discuss what measures were best for the defence of the province. An order was accordingly sent to Ôguchi (to which place it will be remembered the Higo army had retired) to summon the Generals to attend the council. The receipt of this order led to a spirited discussion between the commanders. Ijiuin suggested that the order was imperative and that the army must be at once withdrawn to Kagoshima there to await the result of the deliberations. Niïro, however, stoutly refused to move. "The army must stop here," he contended, "and dispute the passage of the Chiyo-gawa. No enemy has ever before crossed the Satsuma border, and never shall as long as I am here to prevent it. Do you go. I will stay." To this Ijiuin retorted that the enemy was not likely to arrive so very quickly, and that they would have time to return if the council decided to meet the invaders at Ôguchi. "But," said Niïro, "the possibility remains. He may come, and if he finds no one here to receive him, of what use, think you, will our deliberations be at Kagoshima—a hundred miles off? Hidéyoshi has a reputation for swift action in a campaign, and he may arrive at any moment. In warfare a General should be guided by circumstances—not only by his orders. My duty his here, and I shall remain." His arguments prevailed in the end, and Ijiuin and Masahisa proceeded to the capital, leaving Niïro on the banks of the Chiyô-gawa with his 20,000 men.

No sooner had they left than Niïro crossed the river and took up a position on the other side. Being expostulated with on the way in which he had drawn up his army, with the river behind instead of in front of him, he replied that he had done so with the object of deceiving the enemy. "Hidéyoshi," he said, "always goes to the root of things, and is accustomed to find a reason for everything. On seeing the way in which our forces are disposed, he will suspect the existence of some stratagem. His suspicions will be imparted to the Generals under him,

and by them to the whole army. His men will, through fear of a surprise, fight half-heartedly, and by a bold attack we can count upon defeating them."

The Council of war at the Satsuma Capital was very numerously attended, and its members included every male relation of the Prince, for on such a momentous occasion, when none knew at what instant the enemy might not be reported on the border, or signalled on the coasts, it was fitting that the course to be pursued should be put to the general vote of the clan. The question at issue was whether the passage of the frontier by the enemy should be disputed, or whether the Satsuma troops should be withdrawn to some defensible position nearer the capital, where the issue of the campaign should be decided. After a short debate Niïro's plan of action was unanimously approved, and it was settled that Ijiuin should at once return to the Chiyo-gawa with 30,000 men in order to cover Niïro's retreat if he were compelled to retire, while the young Prince Yoshihiro was to take up a position about eight miles to the north of the capital, where he was to await the result of the engagement. Ijiuin lost no time in marching back to the Chiyo-gawa, and he was just able to inform Niïro of the assistance he might look for when the outposts reported the approach of the enemy.

Hidéyoshi was, as Niïro had predicted, nearer than was expected. At Yatsushiro he had been joined by Riuzôji Masaiyé, Prince of Hizen, who brought him in considerable reinforcements, and from that place he made a rapid march on Sashiki. Here he quickly collected a fleet of boats and transported his immense army by sea to the north-west of Satsuma, where it landed unopposed at the end of April. The ordinary route by sea would take the expedition to Akuré, and we shall probably not be far wrong if we accept the neighbourhood of that place as the point of disembarkation. Hidéyoshi was now established in Satsuma territory. Leaving a force of 60,000 men in readiness to proceed by sea to Kagoshima if necessary, he pushed forward rapidly with the remainder of the army, 170,000 men, and on the morning of the 26th of March he came in sight of the Chiyo-gawa, and the Satsuma army, which was drawn up to dispute the passage. The position taken up by the Satsuma General will be understood by a reference to the map. It will be seen that the Kawachi-gawa, which is evidently the Chiyo-gawa of our history,

traverses the province from east to west, falling into the sea near a place called Kiyodamari. This river forms a natural barrier to any force approaching the capital from the north. It was on its further bank and close to the sea that Niïro was posted.

That a force of inferior strength should prefer to fight with the river in its rear was a puzzle to every military man in the Imperialist army. To Hidéyoshi's mind it was capable of solution in only one way. The Satsuma leader, he concluded, must have some stratagem in reserve. But though he rode forward and personally reconnoitred the position, he could see no signs that any particular stratagem was in contemplation, and a careful inspection revealed nothing suspicious. So he gave the order to advance, accompanying it with a caution to the commanders to engage the enemy in separate divisions as their turn came, and on no account to allow themselves to be drawn into a pell mell encounter.

On came the huge army, its two wings overlapping the flanks of the Satsuma force; but when within half a mile of the river it stopped, and the leaders could be seen busily engaged in forming their men into the order in which the battle was to be commenced. Seeing the enemy apparently hesitating, Niïro gave the signal to his men, and at the head of 5,000 charged into the thick of the Kiyôto army before it had time to reform its ranks. Thus taken at disadvantage, the resistance was feeble and the first line broke and scattered in disorder. Pressing on, Niïro engaged the second line, which consisted of the Hizen and Chikuzen contingents under Riuzôji and Akidzuki, and here again the impetuous rush of the Satsuma men carried all before it. By this time the Satsuma leader was well into the centre of the Kiyôto army, and flushed with his success he resolved, in spite of the knowledge that his men must be spent with their exertions, to make a dash for Hidéyoshi's standard. But before he could get within reach of this he had to meet and dispose of the flower of the Kiyôto army, a force more than double his own strength under Fukushima and Katô. Niïro's men were tired; the troops they now met were fresh, and the issue of the struggle was not long in doubt. At the first shock the southerners wavered, and in a few moments they began to give way. When it was clear that they could not hold their own any longer, the 15,000 men forming the

remainder of the Satsuma force on that side of the river came to their assistance, and the action became general. The two armies soon became so mixed up that it was hard to tell friend from foe, and what Hidéyoshi had wished to avoid was thus forced upon him. But though the skill of the Satsuma swordsmen told in the hand-to-hand struggle, the superiority of numbers made itself felt, and step by step the southerners were forced back on the river. In the height of the engagement, however, Ijiuin, who had observed the critical state of things from his position on the other side of the Chiyo-gawa, dashed across at the head of a picked body of cavalry and threw himself on the right flank of the enemy. While the Imperialists turned their attention to this new foe, the Satsuma leader profited by this diversion to commence a retreat across the river. But the enemy did not allow this movement to be carried out unopposed, and swooping down with fresh levies, the struggle recommenced with renewed fury. Its chief incident was a personal combat between Katô Kiyomasa and Niïro Musashi no Kami, in which the latter, by the fall of his horse, was placed at the mercy of his antagonist, who generously refused to take advantage of the accident. The fight lasted till darkness set in, when the Imperialist Generals recalled their men, and the Satsuma army retired in a shattered condition across the river without further molestation. The victory, such as it was, rested with Hidéyoshi, for although the Satsuma men had held the river against superior numbers, their loss in the battle was heavier than that of the allies, and they were obliged to abandon their line of defence.

The news of this ineffectual attempt to arrest the progress of the enemy travelled rapidly to Kagoshima, but the Satsuma chiefs, though discouraged, by no means despaired of success. The country through which the invading army had to advance was ill-adapted to the progress of a large force. What roads there were lay over high passes and in deep ravines, and they might therefore fairly argue that the superior knowledge of the locality possessed by the defenders would render it a matter of no great difficulty to prosecute a guerilla warfare with every chance of success. But in thus confidently awaiting the enemy's advance they were unaware that he had already taken means to obtain an intimate knowledge of the district which lay before him, and even of the

neighbourhood of Kagoshima. To explain how Hidéyoshi gained this information it will be necessary to go back a little in the history of events.

The design of invading Satsuma and of placing a curb on her ambitious policy had been in Hidéyoshi's mind some years before, and at that time one of the reasons which induced him to postpone his action was his ignorance of the actual condition of the province and of its geography. With the object, therefore, of acquiring knowledge on these points, he had in the previous year enlisted the services of the chief priest of the Shin sect of Buddhists, a man named Kenniyo Kôsa. He was one of the few who, during the long struggle between Nobunaga and the priesthood, had maintained a successful opposition. Half monk, half warrior, as the times made him, he stubbornly held his own, while on every side monasteries were sacked and their defenders put to the sword, till at length his skill in the field and fertility of resource won him the respect of his opponents, and by a silent compromise he was left at liberty to devote his attention to the religious interests of the sect for whose independence and very existence he had laboured so strenuously. This was the man whom Hidéyoshi had singled out to assist him in gaining information about Satsuma, and the result showed the wisdom of his selection. Won over, doubtless, by promises of rich endowments in the event of the enterprise being successful, the abbot was induced to proceed to Satsuma,—ostensibly on business connected with the religious affairs of his sect,—in reality to conceal a party of spies sent by Hidéyoshi to learn the secrets of the province. There were several establishments of the *Shin* sect throughout Satsuma. One of these was in the small island of Shishijima,[5] within easy reach of Kagoshima, and in this, probably on account of its secluded position, and its proximity nevertheless to the capital, the abbot took up his residence. The dignity of his position was supported by a retinue of 56 persons, which included two emissaries of Hidéyoshi named Hirano Nagayasu and Kasuya Kadzumasa. No suspicions appear to have attached to his arrival. He was cordially greeted by the Prince of Satsuma, and busied himself with religious ceremonials and lectures on the mysteries of Buddhism. Meanwhile, under cover of their clerical

[5] Not marked in the maps.

disguise and of the enthusiasm evoked by the presence of so eminent an ecclesiastic, the spies circulated freely all over the province and made themselves intimately acquainted with its geography and the affairs of the clan.

Hirano and his confederates had been absent for about a year when Hidéyoshi opened his campaign, and from that moment their first thought was how they could leave Satsuma and communicate the result of their investigations to Hidéyoshi. There were many obstacles in the way. In the first place they had come with the abbot, and having passed for members of his suite it was impossible for them to leave him without exciting suspicion as to their movements. And secondly, the prince, as soon as he had entered on the struggle with Hidéyoshi, had issued strict orders prohibiting any one residing in Satsuma from crossing the borders. So they had to wait and watch the course of events. Before long, to their great delight, they heard of Hidéyoshi's triumphant march, and of his arrival at Kiyodomari, and recognizing the importance of their seeing him before he made his final move on the Satsuma Capital, they begged the abbot to leave the island at once and proceed with them to Kiyodomari. Kôsa consented, and calling together the priests of the monastery, he signified to them his desire to return. He was not alarmed, he said, by the critical condition of the province, but in the present unsettled state of affairs his efforts in the cause of religion were thrown away;—he felt, moreover, that his presence was a source of solicitude to his parishioners, and he desired to relieve them of that anxiety by going away and waiting for quieter times. His wishes were at once complied with. As travelling by land was out of the question, owing to the vigilance with which the borders were guarded to prevent egress from the province, while it was also essential that their departure should be kept secret from the Satsuma authorities, it was arranged that the journey should be made by sea. The necessary preparations were quickly completed, and one dark night a small fleet of boats left the island unobserved and put out to sea, having the abbot and his suite on board and an escort of monks to shew them the shortest route. It had been agreed that the party should be conveyed beyond the limits of Satsuma, but the abbot persuaded the guides, much against their will, to land them at Kiyodomari. On their

arrival the spies at once waited on Hidéyoshi, and explaining how they had succeeded in escaping from Satsuma, supplied him with the information they had collected during their stay.

Hidéyoshi then called the abbot to his presence and thanked him for his assistance, but to the latter's request to be allowed to return to Kiyôto he replied:—"Wait; I have yet need of you. What you have done for me amounts after all to very little, for you were forced to leave Satsuma before your work was completed. But there is one way in which you can render me valuable service. I will not ask you to fight,—although men do say you are no bad hand at it, as Nobunaga found to his cost,—for I have no wish to hurt your feelings. What I desire you to do is this. I have formed a certain scheme for the proper execution of which a special knowledge of the locality is required. The monks of Shishijima who brought you here have that knowledge. I wish you to guarantee that they will obey my orders. When I am satisfied of this I will communicate the details." The abbot, who had looked distressed at Hidéyoshi's allusions to his military exploits, answered that if Hidéyoshi would summon the priests of Shishijima, he would secure their acquiescence in any orders which might be imparted to them. The priests were therefore conducted to Hidéyoshi's presence, where, to their amazement, they heard from their abbot that they were to assist in the execution of a scheme which was devised by a hostile invader, and which had for its object the subjugation of their native province. But sectarian discipline triumphed over patriotism, and their consciences were doubtless satisfied when they replied:—"The commands of Hidéyoshi are not binding upon us;—those of the head of our sect we will implicitly follow." Thus assured of their obedience to the abbot, Hidéyoshi clapped his hands, and at the signal a retainer stepped into the apartment, and unfolding a roll of paper read the following address:—

"His Excellency Hidéyoshi's intentions in coming to Kiushiu are not to destroy Shimadzu, but to restore tranquillity to the country, and to establish peace within the four seas. This is the reason why last year he sent a messenger to direct Shimadzu to repair to Kiyôto. But Shimadzu disobeyed this order, and stirring up disturbances in Kiushiu, took pleasure in civil war, paying no regard to the interests of the

people. Consequently orders were issued by His Majesty the Emperor that Shimadzu was to be punished, and His Excellency was obliged to enter Kiushiu. Still even now if Shimadzu submit, His Excellency is mercifully minded to forgive his past offences, and although there is no present appearance of submission on Shimadzu's part, and he continues to resist obstinately, His Excellency, in the exercise of extraordinary clemency, and in order not to waste more valuable lives in this struggle, desires to make a final effort to bring him to reason. You are therefore required to serve as guides to the army, in order that the troops, advancing by a secret road unguarded by the defenders, may take the Satsuma army by surprise, and force it to surrender without further bloodshed. Say, good Sirs! Will you, out of regard for the noble House which rules over you, and love for your abbot give your services as guides to the expedition and swear to act faithfully by His Highness? Your refusal will involve the clan of Satsuma and the Family of Shimadzu in common ruin: your consent will save the lives of thousands."

The abbot supported the address in a few words:—"My friends," said he, "do not the precepts of Buddha teach that evil is to be punished and good encouraged? The men of Satsuma are obstinate and do not understand what is right. To turn them away from their evil ways, and place them in the right path is to do what the gods will approve."

Thus urged, the priests of Shishijima consented. "Certainly," they said, "we will act as guides, and Buddha shall see that we make no mistakes;"—and they swore to be true to their promise.

III.

Everything at this stage of the campaign was going well for Hidéyoshi. He had arrived within easy reach of the Satsuma Capital after an almost unopposed march through the island, his negotiations with the other princes in Kiushiu had succeeded beyond the most sanguine expectations, and his relations with the local samurai and their leaders were satisfactory; he had met his spies and learnt from them the result of their investigations into the internal condition of Satsuma, guides were at hand to assist in the final advance on Kagoshima, and now he received further encouragement in the arrival at the camp at

Taïneiji of his brother the Dainagon Hidénaga, who brought with him as prisoner Shimadzu Nakatsukasa no Taïyu Iyéhisa. This Satsuma General, it will be remembered, was last heard of as defending the Hiuga border. After the battle of the Mimi-gawa and the fall of Takashiro, he fell back on Sadowara and maintained himself in that castle in spite of the utmost efforts of the besiegers. The fortress was strong and well provisioned, so Iyéhisa had nothing to fear on this score; and if he had heard nothing of what was happening in other parts of Kiushiu, he would probably have continued to hold out. But having no reverses to conceal, the besiegers took care to keep him fully acquainted with everything that passed. He heard in this way how the Satsuma troops had been driven out of Higo and Hizen, of the triumphant march of Hidéyoshi, and of the enemy's unopposed occupation of Satsuma territory: and as each fresh piece of intelligence reached him he fumed and fretted until his position became intolerable. Sadowara was the last stronghold in Hiuga which held out for Satsuma. The enemy was all round him, had crossed the border and was harrying the Satsuma homesteads before his eyes. In this extremity he resolved to yield, in the hope of finding some opportunity later on to escape to Satsuma territory with a portion, if not the whole, of his force. He therefore sent a message to Hidénaga offering to surrender, adding that if his surrender were refused, he would lead his men out, and die fighting in the ranks of the besiegers. The offer took Hidénaga by surprise. His knowledge of the resources of the garrison, and of the fighting qualities of their commander, made him doubt its sincerity. But at the council of war which was held to consider the proposal, the arguments of Kobayakawa Takakagé, the General on whom Hidénaga chiefly relied, were convincing. He pointed out that whatever designs Iyéhisa might have, from the moment of his surrender they could be frustrated by the exercise of ordinary vigilance. The fall of the castle would enable them to advance and join Hidéyoshi, and it would be a lasting disgrace if they were to remain inactive under the walls of Sadowara whilst Hidéyoshi fought his way into the Satsuma capital.

So Iyéhisa's offer was accepted. Hostages were sent to the camp of the Imperialists, and mustering his garrison for the last time, he opened the gates of Sadowara and came out to meet Hidénaga. The

castle was at once occupied by the Imperialists, and Hidénaga hurried off to Hidéyoshi's camp to put his prisoner. Shortly after their arrival Iyéhisa was summoned to the Regent's presence, and met the latter's remark that he had by his reputed sagacity in delaying his submission so long, would go to Kagoshima and persuade the prince to surrender. This proposal was received with derision and indignation by the generals. One and all declared their belief that it was but his liberty: if the bird was let go it would never return. Hidéyoshi, much to their surprise, took a different view. "You speak like a soldier," he said. "Go and engage Yoshihisa and Yoshihiro to us If you cannot induce and prove the falseness of the suspicions cast 20 men.

Iyéhisa started having regard to him plot. conference liberty of action so ea body-guard of Iyéhisa Travelling rapidly, h near Kagosh to explain the two proceeded to a secret Sadowara he was held between That he was prepared to be uma cla surrender of he enemy, and the reasons for his stene his captors; had poured into was powerle n at ce the bearer of the Higo samurai, y t besieging forces, Hiuga and aggra ese hostile bands. a despatch succ the morality of trusting to have an he was sure to b learning his plans, Under these cir s playing his life opportunity he had opportunity of of his prince what his ess to follow the in order to be were. "But why desert occasion. His now got, and no care for their lives I d to this:—Th arrangements a," was the reply. "My re obstinate i your men?" em when my business here as in vain th should have while the prince and his son the clan w men are with the Imperialist army into for disloyal is finished." he river. The road on the added, " retailed th for it b an am the countr amazemer

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castle was at once occupied by the Imperialists, and Hidénaga hurried off to Hidéyoshi's camp to present his prisoner. Shortly after their arrival Iyéhisa was summoned to the Regent's presence, and met the latter's remark that he had not shown his reputed sagacity in delaying his submission so long, with an offer to go to Kagoshima and persuade the prince to surrender. This startling proposal was received with derision and indignation by Hidéyoshi's Generals. One and all declared their belief that it was but a ruse to regain his liberty: if the bird was let go it would never return to its cage. But Hidéyoshi, much to their surprise, took a different view of the case. "You speak like a soldier," he said. "Go and endeavour to bring Yoshihisa and Yoshihiro to us. If you cannot induce them to surrender, return and prove the falseness of the suspicions cast on your good faith."

Iyéhisa started on his errand, overjoyed at having regained liberty of action so easily, being attended only by a body-guard of Travelling rapidly, he reached his nephew's camp near Kagoshima. It was the two proceeded together to the capital. There a secret That he was held between the three leading men of the Satsuma clan surrender of was prepared to be received with reproaches, and hastened at his captors; the reasons for his surrender. In his isolated position at the spirit of his was powerless. All his communications were cut off by with the Satsuma the Higo samurai, following at the heels of the invaders, the morality of Hiuga and aggravated the position. For if by any chance more leniently a despatch succeeded in running the gauntlet of the was playing his life he was sure to be intercepted by one or other of the dness to follow the Under these circumstances he decided to surrender, the occasion. His opportunity of communicating with his brother, an counted to this:—The in order to be able to further their execution. The son were obstinate i now got, and he was there to hear from the lips ty;—it was in vain the arrangements for the defence of the capital istence of the clan w your men?" interrupted the prince. "Had I reproaches for disloyal should have fought my way out of Sadowar you," Iyéhisa added, ". men are with Hidéyoshi, and I shall rejoin th t is finished." He then listened attentively se there is nothing for it b retailed the plan by which he hoped to lea ms. As you know the countr an ambush as soon as it crossed army." But to the amazemer

Kagoshima side of the Chiyo-gawa led through a thick forest, and for some miles was nothing but a bridle path. It then suddenly widened, opening on to a broad level meadow; from this point the road as suddenly narrowed again, and led over a succession of passes, till it finally debouched on to the plain where Yoshihiro had taken his stand with the bulk of the Satsuma army. The invading army was to be suffered to cross the river without molestation. It was then to be decoyed into the narrow path by advanced bodies of skirmishers, who were to offer sufficient resistance to lead the enemy to regard them as placed there to harass their line of march. Meanwhile a large force was to lie in ambush on each side of the road, whilst a third body was stationed on the other side of the broad opening in the middle of the forest. At a given signal, when the Imperialists had advanced as far as they were to be permitted, the brush was to be fired on all sides,—for which purpose bundles of faggots ready cut and dried were already stacked in different places,—the party in ambush would dash in on the extended line of the Imperialists, and the enemy, surrounded on all sides and blinded by the smoke, would be caught in a trap from which no escape was possible. This plan, if properly carried out, was, in the opinion of the narrators, certain of success. Iyéhisa did not take such a sanguine view. His experience of the Imperialist army led him to believe that the military discipline of the enemy would render such a plan difficult and hazardous in execution. Finding, however, that his brother and nephew were full of confidence, he agreed to help them to the best of his ability. "I will return now," he added, "and tell Hidéyoshi you are deaf to all remonstrance. I will say that the castle is plentifully provisioned and can hold out for several years if necessary, and that you are prepared to fight to the last. In fact I will draw such a picture of Kagoshima and our army that he will be impatient to advance and try conclusions with such a stubborn opponent. The battle once begun in earnest, I will collect my men, and making a sudden onslaught on Hidéyoshi, seize him and carry him prisoner to Kagoshima." His brother urged him to think of his own safety, and to consider whether it would not be better to forfeit his parole and fight in the army before Kagoshima. But to this Iyéhisa would not listen: "My word is pledged to return. I cannot break faith with our enemy;

and as to safety, dangerous as it may seem to be in the hands of the enemy, I am safer there than anywhere else, and can escape when I like."

The conference then broke up. Iyéhisa went back to the camp at Taiheiji and Yoshihiro to his position before the capital to prepare for the final struggle which was to decide the issue of the campaign.

Meanwhile at Hidéyoshi's camp the various Generals were loud in condemnation of the policy which had allowed so important a prisoner to escape; for so they called it, not thinking he would return. But the louder their murmurs, the firmer the confidence of their chief. "There may be more," he would say, "in Iyéhisa's submission than meets the eye; but he is not the man to imperil the lives of his soldiers who are here as hostages. He must return and he will,—for is he not a valiant soldier of Satsuma, and one of the Shimadzu Family? Let him plot. I will counterplot, and you shall see who will win.

As we know, Iyéhisa did return, and redeemed his pledge. It was enough for him that he had kept to the letter of his promise. That he had solemnly agreed to be the bearer of overtures for the surrender of the clan, and had seized the opportunity to intrigue against his captors; that by this misuse of his liberty he had grossly violated the spirit of his engagement,—these considerations weighed for nothing with the Satsuma leader. Treachery towards enemies was sanctioned by the morality of the times, and we may be disposed to view his conduct the more leniently if we reflect that throughout the double game he was playing his life was the forfeit if detected. It required no little boldness to follow the course he had adopted; but Iyéhisa was equal to the occasion. His report to Hidéyoshi of the results of his mission amounted to this:—Th negotiations had failed; both the prince and his son were obstinate i their determination to resist to the last extremity;—it was in vain th he had represented to them that the very existence of the clan w imperilled; he had been chased away with reproaches for disloyal and cowardice. "It now only remains for you," Iyéhisa added, ". carry out your intentions."

"Yes," said Hidéyoshi; "I suppose there is nothing for it b to carry the matter through by force of arms. As you know the countr you will do us the favor to precede the army." But to the amazemer

of all who heard, Iyéhisa declined. His refusal roused Hidénaga, who had throughout been loudest in his suspicion's of the prisoner's good faith, and he burst in with,—"According to the law of surrender, the person so surrendering is bound to make proof of the sincerity of his submission by fighting in the vanguard. It is strange that you decline to follow this universal custom." "You are probably right as regards general cases," was the answer, "but mine is an exceptional one. I surrendered simply in order to save my clan, and I have kept my word under circumstances which made it hard for me to do so. I was sorely tempted to throw in my lot with the rest, but I refrained, because I desire to save a remnant of the clan from the general destruction. Do not, then, urge me to commit the blackest of all crimes by fighting in the vanguard against my brother, my relatives and my lord. If you insist, you send me to my death; for I shall not survive the disgrace."

This appeal was not without effect, for Hidéyoshi at once excused his attendance on the vanguard. But as Iyéhisa withdrew, the commander-in-chief turned to his staff and said:—"This is a dangerous fellow; he is not like an ordinary traitor. To have charge of him is like making a pet of a tiger. He must be carefully watched, or we shall suffer for our imprudence."

The Satsuma army under Niiro, Ijiuin and Tanégashima, to which was entrusted the task of carrying out the plan for the defeat of the invading forces related to Iyéhisa during his visit to Kagoshima, lay within reach of the enemy; the bulk of their forces being concealed in a thick forest a short distance from the Chiyo-gawa. Seeing an unusual movement in the Imperialist camp, which they interpreted as the prelude to an advance across the river, the Satsuma leaders made the necessary arrangements for the execution of their stratagem, and in obedience to orders a body of 3,000 men under Tanégashima moved out in the direction of the hostile camp with the object of commencing a skirmish. The Imperialists, whom their recent successes had inspired with confidence, were quite willing to accept the challenge, and in spite of the solutions of their leaders some of the wilder spirits dashed forward and engaged a portion of the Satsuma force. Others soon followed, and the fight became general. Tanégashima at once commenced to retreat, and

when reinforcements, sent by Hidéyoshi to recall those troops already engaged, came up, the Satsuma men, in obedience to orders, broke and fled. The Imperialists dashed after them, and in the excitement of the moment, neglecting their proper duties, the reinforcing battalions joined eagerly in the pursuit. The forest was entered, and while some of the pursuers followed the path, others made their way as best they could through the brushwood. When the open meadow was reached, the Satsuma men, without attempting to reform, dashed across it and into another narrow path on the further side. Their pursuers, who were by this time without formation of any kind, followed them headlong till they were suddenly brought up by a barricade of logs of wood thrown across the path, and held by a body of archers, who met them with a shower of arrows. As they turned back in confusion the forest resounded with shouts and warlike signals, and it seemed to the bewildered Imperialists as if each thicket was alive with unseen foes. To add to their distress, torches were applied by hidden hands to the bundles of brushwood, and the smoke from the burning trees choked and blinded them. But the main object of the stratagem was defeated, for owing to recent heavy rains the brushwood would not take fire easily, and for the most part only smouldered. The Imperialists were thus able to retreat, though not without loss. A sharp struggle took place in the meadow, where the retreating forces found a body of the enemy who had been posted in ambush drawn up to oppose them. Thanks, however, to the timely arrival of reinforcements under Katô, Fukushima and Gamo, the Satsuma troops were forced to give way. The southern Generals were for once humiliated by the failure of their carefully arranged stratagem, and with sinking hopes they fell back in the direction of the main army. At the council of war which followed, the Satsuma counsels were divided. Niïro, always an advocate for bold measures, proposed an immediate attack on the Imperialists with the whole effective strength of the clan, and this proposal found many supporters amongst younger and more enthusiastic officers. Others, however, foremost of whom was Ijiuin, argued that it was madness to offer battle in the open, when by simply acting on the defensive they had on their side the advantages of a knowledge of the country and a choice of positions which were almost

impregnable. These more cautious views were accepted by the majority, and accordingly the Satsuma leaders, in ignorance of the treachery by which they were to be taken unawares by a simultaneous attack on their flank and rear-guard, concentrated their troops to the north of Kagoshima in positions favorable to the defence of the main approaches to the capital. Yoshihiro took up a position about seven miles distant from the capital, and in front of him, and separated from the main army by only two miles, four divisions of 5,000 men each, under Niiro, Ijiuin, Tanégashima and Machida, were posted at strong points on the hills to right and left of the main road. The prince himself remained in the castle with the remainder of his army. Leaving the Satsuma leaders to make their arrangements for the last stand against the invader, we will return to Hidéyoshi, who had completed his dispositions for the final advance upon Kagoshima.

The end of the campaign was not far off. A force of 50,000 men was sent by sea to Shishijima, with orders to divide into two columns, and operate from the south against Kagoshima and any Satsuma army which might be placed to oppose it; another force 73,000 strong, led by Hidénaga, was to advance on Kagoshima by the main road from the north; while two lesser divisions under Katô, Fukushima and Kuroda, proceeded by two different roads leading across the mountains under the guidance of Kenniyo Kôsa and certain of the priests of Shishijima, with orders to converge upon a point between the Satsuma Capital and the army of Yoshihiro.

The forces by sea and land left on the night of the 21st April within a few hours of each other, and on the morning of the 23rd Hidénaga's army came in sight of the Satsuma outposts. The great force moved on until almost within striking distance of the enemy, then suddenly halted and waited, as if reluctant to begin the struggle. While the Satsuma leaders were hesitating as to what they should do, messengers arrived post haste from the camp of Yoshihiro with the astounding news that the main army had been attacked by a large force of Imperialists which had approached from an unknown direction. What had actually occurred was this. The fleet had sailed to Shishijima, and embarking again had landed the expedition on the mainland. The force thus landed having separated into two columns, commanded

respectively by Hirano Masayasu and Wakizaka Yasuharu, had advanced rapidly northwards, and leaving a small body to watch the Kagoshima garrison, had fallen upon the rear of Yoshihiro's army. At the same moment one of the two divisions which had advanced by the mountain roads, that led by Fukushima, hearing the attack, poured out of the defiles where it had lain concealed and closed in upon the Satsuma army with a wild shout. Yoshihiro, disconcerted by this attack from a quarter where he thought himself secure, and suspecting treachery, lost heart, and cutting his way through the enemy with 50 or 60 horsemen, sought safety in flight. The other Generals followed his example, while the army, left to itself, kept up an ineffectual struggle for a time and then laid down its arms. This catastrophe decided the day. Niiro, Ijiuin and the two other Satsuma Generals had meanwhile been assailed by the other Imperialist division under Katô Kuroda, which had come over the hills, but thanks to the desperate valour of their men, and to the inaction of the large force under Hidénaga, which remained where it had halted, they were able to hold their own. Aware, however, of the perilous position of Yoshihiro, they determined to retire upon the main army. They fell back in good order, but the first step in their retreat was the signal for the vast host in front of them to advance. It poured down upon them, overpowering all resistance, and thus overwhelmed by numbers the retreat soon became a rout. Hotly pursued, the Satsuma leaders hurried back only to find the enemy in undisturbed possession of what had been the camp of Yoshihiro. All hope was then abandoned, and commanders and men, mixed up in one common mass of fugitives, took to flight in the direction which each judged to be safest.

The Satsuma army was thus entirely dispersed, and nothing remained before the invaders but the castle of Kagoshima. But before assaulting it, the Imperialist Generals communicated to Hidéyoshi the complete success of the operations and asked for instructions. These were at once issued, and were to the effect that each General was to occupy the ground that he had won, but on no account was any one to advance and follow up the success.

Hidéyoshi's campaign had been one continued success, and the Satsuma clan, whose pride it had ever been that no hostile force had ever crossed the borders of Satsuma, was reduced to the last

extremity, its armies dispersed and its Generals forced to seek safety in flight. Iyéhisa's position in the camp of Hidéyoshi was very humiliating. Nominally he had submitted, but in his heart he had meditated treachery, and the final catastrophe before Kagoshima, so unexpected and overwhelming, caused him the bitterest mortification. While allowed the fullest freedom of action compatible with his position as a prisoner, he was watched narrowly, unknown to himself, and during the events of the last few days he had had no opportunity of carrying out the rash project which he had proposed to himself. Hidéyoshi was always attended by a strong guard, and the success in every action had been so decisively on the side of the Imperialists that Iyéhisa had never the chance which might otherwise have been afforded by the proximity of the struggle to the camp at Taiheiji. Shortly after the final defeat of the Satsuma army, Hidéyoshi summoned his leading Generals to a conference, and he invited Iyéhisa to attend the council. When all were assembled, Asano Nagamasa—who, it is said, had been previously instructed by Hidéyoshi as to what he should say—stepped forward and addressed the council as follows:—

"Sirs, our Generals have triumphed everywhere, and the destruction of the House of Shimadzu is imminent. The head of that family has been treated with much forbearance, but he has resisted obstinately. It is therefore fitting that he should reap as he has sown, and my advice is, that Kagoshima should be at once attacked and destroyed. Its ancient stronghold once razed to the ground, the clan can never again hold up its head in Kiushiu, and the administration of the conquered provinces will be rendered by so much the easier."

The same language was held by Kuroda Yoshitaka, who urged that the object of the campaign would not be effectually completed unless the castle of Kagoshima was destroyed. The latter speaker also touched on the fact that a prolonged delay before the Satsuma capital might give an opportunity for the execution of intrigues against Hidéyoshi at the Kiyôto court. By the general hum of approval which followed these speeches, it was easy for Iyéhisa to see that the views thus forcibly expressed found favor with the majority of the council. He felt that his worst fears were about to be realized, when Hidéyoshi, who had listened attentively, made the following remarkable speech:—

"The course proposed by Asano and Kuroda has certainly one advantage. Undoubtedly the destruction of the Satsuma clan would make the task of governing these provinces very simple. But I am averse to such severe measures. Were I, on the strength of a few paltry successes in the battle field, to put an end to a house like that of Shimadzu, I should feel shame even in my grave. In carrying out the Emperor's orders for the pacification of the country, it has been my endeavour to accomplish this end peacefully where possible. Now before the walls of Kagoshima I am animated by the same purpose. I am not waging a war of extermination, but wish to smooth the road of submission for the rebellious. When once Satsuma submits, her allegiance is secured for ever. The clan glories in its keen sense of honour, and would never furnish traitors to a cause it has once espoused."

Even to those who have been able to trace the spirit in which Hidéyoshi conducted the campaign from the first, his liberality will appear surprising. To advance so far and yet not enter the rebel capital; to have his enemy within his grasp, and yet not crush him; to hold back a victorious army in the hour of victory;—all this argues a forbearance and strength of will which few Generals in those days possessed, and which we certainly would not look for to the feudal times of Japan. In his speech he doubtless endeavoured to conceal his real motives under the guise of extreme generosity and an honest admiration for a resolute enemy. These motives can only be explained by assuming that his campaign had shown him that the only guarantee for the maintenance of order and good government in Kiushiu, was the existence of some strong authority, bending, of course, to orders from the Court at Kiyôto; and in the same way he doubtless acquired the conviction that the House of Shimadzu, from its ancient connection with Kiushiu, and its real importance, was the best fitted to exercise this authority. He might crush the Satsuma clan, but what could he put in its place? Here lay the problem. He could not replace it by any family of equal influence and solidity, and unless a strong chain of garrisons was left to preserve order and enforce the authority of the Central Government—a system which would entail heavy expenditure—his withdrawal might be the signal for the beginning of a reign of anarchy.

It did not occur to Iyéhisa as he listened to Hidéyoshi's speech, to enquire into the speaker's motives; it was as much as he could do to realise the fact that the clan was to be spared if possible, and his conscience smote him for having meditated treachery. When invited to attend the council, he saw no other motive in the summons than a wish to humiliate him, and cause him to suffer doubly by first hearing the doom of his clan pronounced, and later on, being a witness to its death struggle. We have seen how happily he was undeceived. Impulsive like all his clansmen, he was overwhelmed with conflicting emotions, and when the Imperialist commander, the man whose life he had plotted, turned to where he was sitting and expressed his belief in the loyalty of the Satsuma clan when once its pledges were given, in an agony of remorse the listener secretly vowed that he would further his generous captor's intentions with his whole energy. From that moment Iyéhisa was Hidéyoshi's man.

The council broke up, and Iyéhisa hurried off to see the head priest of the temple of Taiheiji. To him the Satsuma leader, full of his new ideas, explained abruptly that it was in his power to save the House of Shimadzu. "Your sect," he said, "was the first to be introduced into Satsuma, and Taiheiji is the ancestral temple of the prince's family; it is therefore right that you should obey my orders." The reply was characteristic:—"To the prince this province owes its existence; to the province, this temple; my services are at the disposal of my lord." "Good," said Iyéhisa; and he then explained to him Hidéyoshi's generous policy, and his own wish to induce the prince to make terms with the conqueror. "Go, therefore," he proceeded, "to Hidéyoshi, and ask him for permission to negotiate with the prince. You will tell Yoshihisa and Yoshihiro that you have Hidéyoshi's orders to use every effort to secure their submission. Their pride may then be saved by the thought that they have not been the first to make overtures, and when they hear that I am safe they will listen to you."

The priest waited on Hidéyoshi, and obtaining the required permission set out at once for the Satsuma capital. Besides the detailed instructions Hidéyoshi had given to him, he carried a letter from Iyéhisa to the Prince Shimadzu Yoshihisa.

On the disastrous day on which the Satsuma forces had been routed in every part of the field, the young Prince Yoshihiro had fled to Kagoshima, where he awaited the arrival of the scattered remnants of his army. To his surprise he found that the actual loss in killed and wounded amongst his own men was but small. The attack had been so sudden, and the panic so complete, that both leaders and men had fled without striking a blow. That night the woods and hills in the neighbourhood held thousands of fugitives of all ranks, who, now that the enemy showed no signs of pursuing them, came creeping out of their hiding places into Kagoshima. The disbanded forces thus collected made a still formidable army, but the old spirit which had animated them was gone. Both leaders and men were utterly cowed, and recognising, therefore, the uselessness of attempting to make another stand without the walls of the town, the Satsuma Generals concentrated their troops in the castle. And as an attack might be expected at any moment, the garrison busied themselves in making every provision for a siege. Weak points in the defence were strengthened, fresh entrenchments were dug, and the battlements were manned with the full complement of men. But,—and not for the first time in the course of his campaign,—the enemy showed no disposition to follow up his success, but lay quietly encamped in the captured positions. Three days had thus passed since the defeat before Kagoshima, and still the enemy had not stirred. On the morning of the fourth day, a scout reported that a slight stir was observable in the enemy's lines, and presently some sentinels, posted on the look-out, observed a procession of a few palanquins crossing the hills to the north of the town. Gradually, for it moved but slowly, it neared the castle, and to the challenge of the guard an answer was given that a messenger from the Imperialist commander-in-chief demanded an audience of the prince. With so small a following there could be no fear of treachery, so the gates were opened and the messenger admitted. Having entered, he stept out of his palanquin and announced himself as the head priest of Taiheiji.

Shimadzu Yoshihisa was prejudiced against the priest because he came from a place in the hands of the enemy, but he received him with the courtesy due to his rank, and learning that the nature of the

communication he had to make was private, led the way into an inner chamber, into which only his son Yoshihiro and the priest followed him.

Seating himself and motioning the visitor to do likewise, the prince inquired his business. "I come," replied the priest, "seeking the welfare of the province." "The welfare of the province," repeated the prince drily; "please explain yourself."

Thus urged, the abbot commenced a long harangue, taking for his text the "Will of Heaven," a common theme of Buddhist discourses. Man, he explained, has his duties to perform in this world, according to the class of life he fills, and though it might seem otherwise, all social ranks and distinctions are in reality the work of Heaven. Nothing in the world can be done without its influence; man is but an instrument in the hands of Heaven. As instances in support of his argument, the speaker alluded to the rise of Nobunaga, his death by the hand of Akéchi Mutsuhidé, the career of Hidéyoshi and his recent victorious campaign. In each case the hand of Heaven was discernible. Heaven had willed that Hidéyoshi should conquer Kiushiu, and it was not for the Shimadzu to withstand the decree of Providence. The speaker discoursed at length on this text, then skilfully shifting his ground, he appealed earnestly to the personal sympathies of his hearers. Of the widespread desolation caused by the long waged war; of the family ties which must count for something in the forthcoming decision of the clan, he said nothing; nor of the diminished revenues, scanty harvests, and suffering peasantry. But he reminded his hearers of their illustrious descent from Yoritomo, and the foundation of their family four centuries before, and dwelt with a touch of genuine pride (for he was a Satsuma man himself) on the glorious traditions of the clan and the proud position which it had achieved for itself unaided in Kiushiu. He concluded an eloquent appeal in these words:—"Would it be right, think you, to stake all this on an issue in which your chances of success are, believe me, as nothing? Would it not rather be ingratitude to your ancestors, cruelty to your clansmen, and injustice to your posterity? Be wise, therefore; dismiss your pride, and negotiate for peace; so shall posterity have cause to thank you and the shades of your ancestors rest in their graves."

There was so much sound sense in the abbot's address that the prince and his son hardly knew what to reply. And when they found an answer, it only betrayed the weakness of their position.

For their objection that the clan was no longer in a position to sue for terms without lowering itself irretrievably in the eyes of the world the abbot at once met by pointing out that the first overtures had come from Hidéyoshi. Their pride could not therefore suffer on that score. As for their unwillingness to yield,—the feeling was a natural one: but even if they considered such a step wrong, the Shimadzu might surely be content to err in such good company as that of Môri of the Ten Provinces and Chôsôkabé of Shikoku.

The prince and his son were gradually won over by these arguments, and when the priest, who had watched his opportunity, gave them the letter of Iyéhisa and explained under what circumstances it was written, the scale was turned in favor of submission. This resolution was at once laid before a general assembly of the clan, by whom it was approved, and nothing then remained but to arrange the details of the surrender. To guard against treachery it was decided that Yoshihisa should set out immediately for the camp of Hidéyoshi, where his son should join him if everything was found to be satisfactory.

The party, travelling quickly, soon reached the headquarters of the Imperial army, and there Yoshihisa for the first time stood face to face with Hidéyoshi. He saw indeed a man—such as described in all chronicles of the times—of small stature and a weazened, monkey-like face; but as our historian tells us, "there was an innate nobility in the demeanour of the great General, and Yoshihisa was filled with awe."

The negotiations between the two leaders need not detain us long. At the instance of Hidéyoshi, who declined to move in the matter in the absence of Yoshihiro, the Prince's son was sent for. On his arrival Hidéyoshi communicated his terms. The territory of Satsuma was restored almost in its entirety, and was to comprise Ôsumi, Satsuma and half of Hiuga. But this concession was purchased by the deposition of the reigning Prince Yoshihisa, who was to abdicate in favor of his son Yoshihiro, and was to accompany Hidéyoshi on his return to the capital as a hostage for the clan.

The liberality of these terms astonished the Shimadzu Family, while it disappointed many of the Generals under Hidéyoshi, who had looked for a redistribution of the Satsuma territory, in which their claims would receive attention.

A characteristic incident occurred on the return march of the Imperialist army. As the vanguard was defiling through one of the passes on the borders of Satsuma, they suddenly found the road barred by a hostile force, whose leader, advancing close to the front ranks of the Imperialists, announced himself as Niïro Musashi no Kami. With an obstinate fidelity to a failing cause which refused to recognize defeat as long as a handful of his men were still round him, he had taken to the hills on the day of the final disaster to the Satsuma army, and refused to join his clansmen in seeking shelter behind the walls of Kagoshima. While the negotiations we have described were pending, he carefully kept aloof, and as each day the arrival of fresh fugitives swelled the ranks of his small army, at the end of a fortnight he considered himself strong enough to take the field at the head of a force of 3,000 men. Of the course of events since his retreat from the field, when all seemed to be lost, he knew nothing, and he accordingly conceived the bold idea of marching to the border, there to lie in wait for any portion of the enemy's army which might pass that way. It happened that he chose the very line of route by which the whole Imperialist army was returning, and thus further bloodshed was avoided;—for on learning the actual state of things he saw the absurdity of attempting any further resistance and gave in his submission. He earned, however, the proud distinction of being the last Satsuma man who laid down his sword.

In closing our account of this chapter of Japanese history it only remains to notice an episode which illustrates the barbarity of the times. After the surrender of the Prince of Satsuma it leaked out in some way that the success of the movement by which the Satsuma forces were surprised and routed before Kagoshima was due to the assistance of guides. And as soon as the last soldier of the invading army had left the country, a searching inquiry was instituted, with the result that the part taken by the Shishijima priests was disclosed. The popular feeling, eager to find some scapegoat on which to avenge their

humiliation in the late campaign, clamoured for the execution of the men who had been traitors to their province, and the poor priests of Shishijima and their parishioners were barbarously crucified. Nor did the Satsuma vengeance stop here. A decree was issued that every inhabitant of Satsuma, from the highest to the lowest, from the samurai down to the common pedlar, who belonged to the *Shin* sect of Buddhists must renounce his creed. Any who disobeyed this order were to be expelled the province, and those who resisted expulsion might be killed with impunity. The effects of this ill-advised policy are to be traced to this day, and the general repugnance to Buddhism in the southern provinces of Kiushiu is thus explained.

It may be asked what action Hidéyoshi took on hearing of the massacre. He availed himself of a method of shewing dissatisfaction much in vogue among diplomatists. He protested.

Curtis.

LAND PROVISIONS OF THE TAIHÔ RIÔ.

By C. J. Tarring, Esq., M. A.

[*Read December 9, 1879.*]

The Taihô Riô, or Code of Taihô, is so called from having been drawn up in the second year of the period of Taihô, A. D. 702, which was the thirty-second year of the reign of Mommu Tennô, who reigned from A. D. 671 to A. D. 706. The text was supplemented by notes contributed by the judges and lawyers and other learned men in the spring of the 10th year of Tenchô, A. D. 763, by order of the Emperor Junna, and authorized by the Imperial Government. Text and notes now form a work called Riô no Gi-ge, or Commentaries on the Law, the whole written in the Chinese in use among the Japanese of those times.

The work is divided into thirty sections, devoted to as many branches of the law.[1] The section treating of the land system is called

[1] These sections are named as follows: Vol. 1—Kuwan-i riô (Official titles), Shoku-in riô (Duties of officials), Kô-in-shoku-in riô (Duties of officials of the household of the Empress), Tô-gû-shoku-in riô (Duties of officials in the household of the Heir-apparent to the crown), Ka-rei-shoku-in riô (Duties of officials in the household of officers of high rank); vol. 2—Jin-gi riô (Dedication to the gods), Sô-ni riô (Buddhist priests), Ko riô (the Family); vol. 3—Den riô (the Land), Fu-yaku riô (Taxation), Gaku riô (Learning); vol. 4—Sen-jo riô (Official ranks and titles), Kei-shi riô (the Descent of the Crown and Dignities of royal or imperial persons), Kô-kuwa riô (Meritorious fulfillment of official duties), Roku riô (Salaries); vol. 5—Ku-yei riô (Court guard), Gum-bô riô (Army and frontier defence); vol. 6—Gi-sei riô (Ceremonies), I-fuku riô (Official costumes), Yei-zen riô (Public works); vol. 7—Ku-shiki riô (Mode of addressing persons of rank); vol. 8—Sô-ko riô (Stores of rice and other grain), Kiu-boku riô (Stables and fodder), I-shitsu riô (Duties of medical officers attached to the Court); vol. 9—Ka-nei riô (Official vacations), Sô-sô riô (Funerals and mourning), Kuwan-shi riô (Watch and ward and markets), Ho-bô riô (Arrest of criminals); vol. 10—Goku riô (Jails), Zatsu riô (Miscellaneous, including bailment, finding of lost goods, etc.).

Den riô, or Law of Land; but a few provisions relating to the same subject are found in the Fu-yaku riô (Law of Taxation), the Ko riô (Law of the Family), and the Sô-ni riô (Law of Buddhist priests). There is, as might be expected, a lack of logical division and ordering of the subject, which the writer of the present paper has attempted to remedy; topics are treated fragmentarily in different places, which a modern author would have given a single complete view of at once. There are, however, indications of a highly artificial organisation of society having already developed itself, both in the ingenious and even minute classifications and distinctions found in the Den riô, and in the titles themselves of other sections of the entire work. (See Note 1.)

There seems to be considerable doubt as to the amount of binding force possessed by the Code. It appears only to have had effect at any time in those parts of Japan immediately subject to the rule of the Imperial Court. The rise and progress of the Shôgunate must, therefore, have seriously restricted its authority. However that may be, it is of considerable interest to jurists at the present day, as exhibiting the juridical ideas concerning property in land in vogue at that epoch. Theoretically, the law is still in force; and it forms one of the subjects of study in the Law Department of Tôkiyô University.

At the outset the principle is laid down that the whole of the land is the property of the Sovereign, by whom different kinds of estates were granted out to different classes of persons. These kinds of estates were as follows:—

1. *Ku-bun-den, or mouth-share-land.*—This was granted to all persons of the age of five years and upwards in the proportion of two *tan* each to males and two-thirds of a *tan* each to females, except where the population was large and the available land of small extent.[2] Even slaves received a share of *ku-bun-den*. Public slaves were entitled to as much as f[illegible], but land in their hands was said to be *fu-zei-den*, i.e., it [illegible] or let to profit. Private slaves were entitle[illegible]

[illegible]uciently 30 *ho* by 12 *ho*, now 30 *ho* by [illegible]t day a *chô* is 12,000 square yards, and [illegible]easure of the same extent as the old [illegible] giving 5 *shô* of threshed rice, of [illegible]

one-third a freeman's share, if there was sufficient land.[8] When granted out the land had to be marked out by bounds. *This ku-bun-den was given for life only, and reverted to the Sovereign on the death of the tenant.* A fresh distribution was supposed to be made every sixth year, called the *han-nen* or distribution year, corresponding to the limit of age qualifying to take *ku-bun-den;* but this provision was not literally carried out. In the first month of the *han-nen* the quantity of unappropriated land was to be reported to the *Dai-jô-kuwan* or Central Government. In the tenth month the local authorities were to calculate the amount of land required and the number of persons entitled to it. In the eleventh month the persons entitled were called out and received their shares; and the distribution ought to be finished before the end of the second month of the succeeding year. In the interval between the death of a tenant and the succeeding *han-nen* the land was held by the late tenant's family. In general it was necessary that *ku-bun-den* should be granted near the residence of the grantee, even though he wished otherwise; and on reversion the land had to be returned in one compact parcel.

Where the land was sterile and did not give an annual crop, twice the regular amount was given, such land being called *yeki-den*, or land cultivated by alternation.

2. *I-den, or rank-land.*—This was granted to persons of rank according do their rank, as follows:—

Ippon	consisted of	80	*chô*
Ni-hon	"	" 60	"
Sam-bon	"	" 50	"
Shi-hon	"	" 40	"

} Given only to persons of imperial rank.

Then came the denominations of persons of official rank, and their assignments of land:—

Shô ichi-i	received	80	*chô*
Jû ichi-i	"	74	"

[8] The following classification of persons is found incidentally marked out in the section of the Code which treats of the family (Ko riô): Persons are divided into *riô-min*, or freemen, and *semmin*, or slaves. *Semmin* again are divided into *kuwan-ko*, *riô-ko*, and *kô-nu-hi*, belonging to the public; and *ke-nin* and *shi-nu-hi*, belonging to *riô-min*.

Shô ni-i	received	60	*chô*
Jû ni-i	"	54	"
Shô sam-mi	"	40	"
Jû sam-mi	"	34	"
Shô shi-i	"	24	"
Jû shi-i	"	20	"
Shô go-i	"	12	"
Jû go-i	"	8	"

A female of corresponding rank received two-thirds of a male's share.

The above persons had *kurai* or *i*, i.e. rank. They generally held office also, and then received additional allotments of land of the next kind of estate.

3. *Shoku-bun-den, or land given as salary to persons holding office.*— Here we come upon a distinction between office-holders as being either *zai-kiô*, officers in the capital, or *zai-ge*, officers outside the capital. Lands granted to *zai-kiô* were as follows:—

The Dai-jô dai-jin received 40 *chô;* the Sa-dai-jin and U-dai-jin received 30 *chô* each; the Dai-na-gon received 20 *chô*.

Lands were granted to *zai-ge* as follows:—

The governor of the *da-zai-fu*[4] *(da-zai no sotsu)* received 10 *chô;* the next subordinate *(dai-ni)* received 6 *chô;* the next officer *(shô-ni)* received 4 *chô;* the next rank comprised several officers[5] who each received 2 *chô;* officers of the next rank[6] received each 1 *chô* 6 *tan;* officers of the next rank[7] received each 1 *chô* 4 *tan*, after whom came the *Rei-shi* with 1 *chô* and last the *Shi-sei*, who received 6 *tan*.

Then came the governors of provinces *(kami)*, who received shares according to the class to which their province belonged.[8]

[4] The *da-zai-fu* was the province now called Chikuzen in Kiushiu. The duties of the governor *(da-zai no sotsu)* were chiefly connected with the naturalization of foreigners and the defence of the southern part of the empire. It was a sort of army, navy, and foreign department. The city Da-zai-fu was situated in Tsukushi, near the modern Hakata, in the northeast of Kiushiu. *Vide* the Shoku-in riô, vol. 1 of the Code.

[5] *Dai-kuwan, Shô-kuwan, Dai-han-ji* (chief justice).

[6] *Dai-ku, Shô-han-ji* (puisne justice), *Dai-ten, Bô-jin no kami* (head of the defensive army), *kamu-tsukai* (servant of the gods), *hakase* (professor, teacher).

[7] *Shôten.*

As to the classification of the provinces *vide* the Shoku-in riô.

Governors of *tai-koku* received 2 *chô* 6 *tan*.

" " *jô-koku* and assistant governors of *tai-koku* 2 *chô* 2 *tan*.

" " *chiu-koku* " " " " *jô-koku* 2 *chô*.

" " *ka-koku* and the executive officers of *tai-koku* and *jô-koku* received 1 *chô* 6 *tan*.

Governors of *gun* or *kôri* (divisions of provinces) again received shares according to a classification of those officers themselves into (1) *dai-riô*, or head, who received 6 *chô*; (2) *shô-riô*, who received 4 *chô*; and (3) *shu-sei*, or clerk, and *shu-chô* or keeper of the records, who received 2 *chô* each; but if the village in which the officer resided was small, these shares abated.

The principle of granting lands as salary for official duties was carried to the extent of endowing post-towns along the roads with lands to defray the expenses of supplying coolies and horses for government use. These lands were called *yeki-den*,[9] or post town lands, and were apparently a variety of *shoku-bun-den*. These lands were granted to post-towns on a scale according to the class of road upon which the towns were situated. Thus post-towns along roads classed as *dai-ro* received 4 *chô*; along roads classed as *chiu-rô*, 3 *chô*; along roads classed as *shô-ro*, 2 *chô*.

4. *Kô-den, or land granted for public merit.*—*Tai-kô* was granted for the highest public merit and was given in perpetuity; *jô-kô* was granted for high public merit, and was held to the third generation; *chiu-kô* was granted for medium public merit, and was retained only to the second generation; *ka-kô* was granted for the lowest recognized public merit, and only descended to a son or daughter.

Land of this nature (*kô-den*) was only to be given to a man in the place to which he belonged, if there was land there in sufficient quantity, unless the Emperor named a particular piece of land elsewhere.

If a person entitled to *i-den* died before he came into possession of

[9] This is a different word, though bearing the same sound, from the name given to the double share of *ku-bun-den* granted on account of sterility. The two words are both Chinese but have different meanings, and are represented by different characters.

his entire estate, only that portion descended to his heirs which the ancestor had actually taken possession of, which might be none at all. In the case of *kô-den*, however, the heir in such a case was entitled to the whole.

5. *Shi-den, which was an estate created by the especial edict of the Emperor.*—If in any part of a province (*kuni* or *koku*) the land was insufficient to give a proper share to each person (such a part of the country being called *kiyô-kiyô*), the deficiency might be made up out of a distant part of the same province where the land was sufficient in quantity (such part being called *kuwan-kiyôu*).

A certain quantity of land was retained in the *Go-ki-nai* (the five home provinces) for direct government purposes. This was called *kuwan-den*. Thirty *chô* was so retained in Yamato and Settsu, and twenty *chô* in Kawachi and Yamashiro. One head of kine[10] had to be fed on every two *chô*, and tended by a house exempt from the burden of public labour. (See below, Kuwa-yeki). *Kuwan-den* was under the immediate control of the *Ku-nai-shô*, or office of the Imperial Household, by which the crops were regulated, and a report made to the Dai-jô-kuwan, that the necessary number of workmen might be furnished.

A particular denomination is given in the Code to land devoted to the cultivation of mulberry (*kuwa*) and lacquer (*urushi*) trees. Such land was called *on-chi*, and was granted out to the families of a village, and only reverted to the sovereign if the family died out. But it was transferable from one family to another. The families in a village were distinguished according to the number of their members as *jô-ko*, *chiu-ko*, *ka-ko*. *Jô-ko* families receiving *on-chi* had to plant 300 mulberry trees and 100 lacquer trees; *chiu-ko* families had to plant their *on-chi* with 200 mulberry trees and 70 lacquer trees; while *ka-ko* families had to plant 100 mulberry trees and 40 lacquer trees. These trees were to be planted within five years of the grant, unless the land was unsuitable or not extensive enough. The amount of the shares would depend on the extent of the village, and newly formed families became entitled like old ones.

Transfers of building land (*taku-chi*)[11] had to be notified to the local

[10] *Ushi no ittô*, exactly rendered.

[11] *Taku-chi* signifies the land upon which a dwelling was built, together with the curtilage, but exclusive of the dwelling itself.

authorities and their consent obtained. But dwellings or warehouses, apart from the land on which they were built, might be transferred without notification. This provision also applied to *on-chi*, and to land brought under cultivation by the owner's own labour. If a man went to a foreign country and did not return, his *ku-bun-den* reverted to the Emperor, unless he left relations in the country within the fifth degree of consanguinity living in the same household, in which case the land was assigned to them for ten years from motives of clemency. *I-den* and *shi-den* were subject to the same rule; but not *shoku-bun-den*, in which case probably the office to which the land was annexed was filled up in a short time, and the *shoku-bun-den* went to the new incumbent. In the case of *ku-bun-den* the original owner received his land or an equal amount back on returning within the ten years.

If a land-owner died in the Emperor's service, e.g. in war, his land went to his son or daughter, but not to any other surviving relative.

Any man might lease his land for one year only, unless it was *on-chi*, when he could lease it for any time or sell it outright. But in each case the consent of the local authorities was necessary.

When different persons held lands in intermixed portions, they might apply to the local authorities and have the land redistributed in proportionate entire parcels, a record of the transaction being kept.

If a river changed its course, the occupier of the land over which the new channel was formed was at liberty to take that part of the old bed left dry. If *ku-bun-den* was practically lost to the grantee by reason of floods, etc., it was resumed in the *han-nen* (or distribution year), and a new share granted out. This rule did not apply to lands belonging to religious bodies, which were called *fu-zei-den*, land exempt from taxation.[12]

In deciding as to priority of receipt of land, an order was followed which was based upon a combination of three classifications of families into—

(1) *Kuwa-ko* and *fu-kuwa-ko*, or taxable and untaxed;

[12] This word *fu-zei-den* is the same as is used with reference to the share of public slaves in *ku-bun-den*. In both cases the word implies that the land could not be made a profit of.

(2) Those possessing and those not possessing any land;
(3) Rich and poor.

The order then was as as follows:

1. *Kuwa-ko*, and of them:
   - *(a)* those that had no land;
   - *(b)* those that had a little;
   - *(c)* the poor;
   - *(d)* the rich.

2. *Fu-kuwa-ko*, and of them:
   - *(a)* those that had no land;
   - *(b)* those that had a little;
   - *(c)* the poor;
   - *(d)* the rich.

No person possessed of land was allowed to give or sell it to a temple.[13]

Land, either public or private,[14] which had been abandoned for three years on more, would be lent to any one making application for it; and it would be no objection that such land was situated in a distant *gun*. Private land so lent had to be returned to the owner after three years' enjoyment; public land was returned to the government after six years; but if at the end of the six years the temporary tenant had not yet received an allotment of *ku-bun-den*, public land cultivated by him would be assigned in part or entire satisfaction.

The officers of any province were allowed to cultivate unoccupied land in their province, if there existed any, during their term of office on application to the government.

On a dispute arising as to land, crops sown before go to the tenant in possession; crops sown subsequently went according to the judgment. Similarly as to manures, compensation was given or not according as to whether they were laid down before or after.

Crops sown by the *zai-ge* officers on their *shoku-bun-den* go to them

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[13] An early instance of a law of Mortmain.

[14] *I-den*, *shi-den* and *ku-bun-den* was called private land: all other kinds of land were public land.

on their leaving office and giving up the land to their successors. The outgoing tenant also received compensation for labour expended on the land.

In the *Fu-yaku riô*, the section relating to taxation, there are found the following provisions concerning land:—

When a crop was injured by worms, frost, etc., the family owning the land was exempt from taxation that year in the following proportions, viz.:—

(a) When the crop was injured to the extent of one-half or more (*go bu*, 5 parts, i.e. out of 10), the tax on the land was remitted.

(b) If the injury was to the extent of 70 per cent (*shichi bu*, 7 parts out of 10), all miscellaneous taxes, such as the produce of mulberry and lacquer trees, were remitted.

(c) When the injury was 80 per cent (*hachi bu*, 8 parts) and upward, all *kuwa-yeki* (personal services) were remitted.

Kuwa-yeki was compulsory service by all males who attained majority for 30 days in the year; and two minors, or *ji-tei*, were considered equal to one person of full age, so that each minor was required to serve for 15 days. At 66 years of age the liability ceased.

The nature of these services may be gathered from the provisions enacted with respect to them. Thus the labourers were to be allowed to rest between 12 noon and 4 in the afternoon during June and July: they were not to be made to work at night: if the labourers fell sick, or it rained, so that they could not work out of doors, they were only allowed half rations; but if the services did not require exposure to weather, work was to be continued even during rain, and full rations were to be supplied. If labourers were taken ill on their way to the scene of their labours, they were left in the care of the local authorities and fed out of the public funds. If they died, a coffin was to be furnished out of the public funds; and if no one claimed the body, it was to be burnt and the ashes buried by the wayside and a mark set up. But the remains were to be given up to any relative or friend who had a right to apply for them.

The following cases of exemption from *kuwa-yeki* were allowed: Father, grandfather, brother, son and grandson of persons of the

rank of *sam-mi* (the third class of official rank) and above; father and son of *go-i* (fifth class of official rank) and above; all persons of royal blood; persons infirm, or seriously ill, or deformed; females; slaves.

These labourers were all under the superintendence of the *koku-shi*, or governor of the province, when at home. At the place of service an officer called *Dan-jô-tai*[15] was charged to keep order.

In the Ko riô, or section treating of family law, the following interesting provision is found. Every five houses were united for purposes of common security into a community called *go-hô*. If a man became a fugitive, his *ku-bun-den* was kept and cultivated as before by the *go-hô* or his relations within the third degree for three years. At the end of that time, if he did not return, it reverted to the Sovereign.

In this section too there are some rather elaborate rules as to inheritance. Inheritable property is described as slaves, land, houses, and personal property (*shi-zai*). *Kô-den* (land granted for public merit) is to be divided equally among both male and female relations. As to the rest the rules are as follows:—

The mother (*chaku-bo*),
the step-mother (*kei-bo*),
and the eldest son (*chaku-shi*), } each received 2 parts;
the younger sons (*sho-shi*) received one part each;
the concubine (*shô*)
and the female children } received one-half part each;

Children of sons, including adopted children, represent their father, a female child taking half the share of a male child; but if all the sons died, all their children took *per capita*.[16] Children of daughters did not represent their mother.

Property belonging to a wife on her marriage is not included in the distribution.

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[15] A kind of police prefect. The office existed, in name at least, till nine years ago, when it was absorbed in the *Shi-hô-shô* or judicial department.

[16] Sir Henry Maine, in his Early History of Institutions, p. 328, points out the significance of succession *per capita* as marking an earlier stage of law than succession *per stirpes*. Here we seem to see a transition in process from one form of succession to the other.

The widow or concubine of a son of the deceased received that son's share if there were no children.

If the deceased left a sister or niece remaining in the house, they took a half share of the grandchildren, even if they were married, unless they had received a portion. If a man died without male issue, the widow or concubine represented her husband. But if a son succeeded to his father's share, he was obliged to allow his widowed mother during her widowhood to enjoy the property jointly with him.

The above rules as to distribution did not apply to the kind of estates called *kô-den*, which was divided amongst all the children, male and female, in equal shares.

When members of a family agreed to live together and to enjoy the property jointly, the above provisions did not apply. Nor did they in the case of a disposition *inter vivos* by the deceased clearly established.[17]

In the Sô-ni riô, or section relating to Buddhist priests, it is provided that priests and nuns may not hold land.

Modern lawyers will probably notice some marks of inconsistency or incompleteness in the provisions of the Den riô as above set out. Perhaps the most obvious is also the true explanation,—that in a code of such an early date as this the same scientific accuracy and completeness cannot be expected as would be demanded in the present age in such a work.

[17] Wills are not mentioned in the Code.

ON THE JAPANESE LETTERS "CHI" AND "TSU."

By J. Edkins, D.D., Corresponding Member of the Society.

[*Read January 13, 1880.*]

The Chinese language has been in a state of constant flux since the time of the introduction of the Chinese characters into Japan. Change is inevitable in human speech, and the Japanese tongue is not likely to prove an exception to the law. The syllabaries in use in the schools of Japan were invented at a time quite long enough ago for changes to enter in the interval between then and now. If changes have come into the Japanese syllabary, in what parts of it are they to be found? In this subject of inquiry the late very elaborate paper by Mr. Satow, on the "Transliteration of the Japanese Syllabary," is adapted to be most useful.

I cannot but think, notwithstanding the adverse opinion of Mr. Satow in page 18 of his paper, that there are strong indications of flux in the sounds *chi* and *tsu*. I think also that there has been a remarkable change in the *f* and *h* group, on which Mr. Satow gives no opinion.

Several sources of evidence on these changes will now be appealed to.

1. The sound *tsu* is *t* in certain positions. Thus in *motte*, *yotte*, the sibilization disappears. Here we find the original sound preserved in a favourable position. It is the *te* following it that throws the primitive sound into relief, and has prevented its being altered into *tsu*.

So it is that in *hito*, *bito*, the original sound *b* is preserved from variation. The second word follows the first quickly. The disintegra-

tion is prevented by this instantaneous sequence. *B* keeps its form, while *h* is the only vestige remaining in the first word of the original initial.

2. There is nothing to prevent the Japanese from pronouncing *ti*. My present informant, a young Japanese recently arrived in China, pronounces the Chinese words *ting*, *ti*, quite distinctly and without any difficulty of utterance. Why should not the ancient Japanese be able to do so too? The irregularity which now meets us did not arise from any difficulty in enunciating *ti* and *tu*. It has originated since the invention of the *iroha*, and is caused by the sibilization of *t* before two out of the five vowels.

In writing the sound of the Chinese character 丁 the *Go Won* has *chiyau*, the *Kan Won*, *tei*. There is no doubt on the point that *t* was the true Chinese initial at the time. Then why should not the Japanese write it? What I maintain is that they did write it, and that the sign they employed was *ti* at the time and afterwards changed its value. If they had no *ti* in their alphabet they would have made one. It was too important not to be represented.

This is a matter easily tested. Are there any Japanese who cannot sound *ti* and *tu*, and if so how many per cent?

3. The Japanese have always regarded *ta*, *chi*, *tsu*, *te*, *to* as a single group with one initial consonant only. If at first *chi* and *tsu* had had a fully developed form, the Buddhist priests who controlled education would have looked to the *ch* series of letters in the Sanscrit alphabet as their type and added it to the Japanese syllabary. Mr. Satow states that some Japanese writers, when using Roman letters, write the two signs in question *ti* and *tu*. Doubtless they have an instinctive sense derived perhaps from the usage in *motte*, *yotte*, etc., that *chi* and *tsu* were not the true original sounds.

4. Analogy in the Korean language speaks for an extensive change from *ti* to *chi* still going on. For example, the Chinese word *ti*, "emperor," is pronounced in northern Korean *tei*, while in southern Korean and in the capital it is *chiye*. Books printed in the native character follow the usage of the capital in this point and write *chiye*. Medhurst's vocabulary writes the word *tei*, and in doing this follows

the northern Korean in preference to that of the capital. The Japanese also read this word *tei*. The Korean small dictionary of Chinese pronounces it *tiye*.

The Chinese word 忠 "faithful" is read by the northern Koreans *t'yong*. In Medhurst's vocabulary and in the novels printed in the metropolitan dialect it is called *c'hyong*. By the Japanese it is read *chiyu* or *chiu*. The small Chinese tonic dictionary used in Korea has also *c'hyong*.

The change from *t'i* to *c'hi* has taken place in south Korea and in Japan. In north Korea the old *t* initial is still retained. The Korean and Japanese languages are cognate, and since the Korean has this change from *ti* to *chi* distinctly developed, an argument may be derived for the existence of the same law of change in Japanese as suggested by the anomalous condition of the *t* group in the syllabary.

This change from *ti* to *chi* in Korea is not limited to Chinese words. Native Korean words are liable to it. The word for "temple," the Japanese *tera*, is heard *chiyer*.

The appearance of the Mongol syllabary is such as to suggest that *ji* has changed from *di*. There are scarcely any words commencing with *di*, while there are many beginning with *ji*. This is caused by the vowel *i* in leading to the sibilization of the preceding dental consonant. The vowel *i*, then, when it follows *d* or *t* has the effect of changing them to *j* or *ch*. But Mongol is cognate to Japanese and therefore similar laws of changes in letters may be expected.

5. A fifth source of evidence is formed in the Japanese way of writing Chinese words with the initial *ch* or *ts*. Thus *t'sun*, "an inch," is always *sun*, never *tsun*. Now if the Japanese syllabary had in it *tsu* as a clearly developed syllable at the time of the transcription, this symbol would naturally be used for the name of the Chinese "inch." But if the modern Japanese *tsu* was anciently *tu*, then the regular avoidance of *tu* when the Chinese *tsu* occurs is to be expected. If any one looks over the columns in Hepburn's dictionary consisting of words beginning with *tsu*, he will find cited many Chinese words beginning with *t*, some beginning with *ch* (these have changed *t* for *ch* since the time of the transcription) and almost none commencing with *ts*.

So if the Chinese words in the columns devoted to the syllable *chi*

be examined in Hepburn, they will be found to be partly words in *t*, and partly words in *ch*. Among the words in *ch* are many that have in Chinese changed *t* for *ch* since the time of the transcription. Some of them, however, were pronounced *ch* at that time, e.g. 支 *chi*, "branch," used in the Buddhist name for China. This is usually "Sina," although Hepburn gives both "Sina" and "Chiina." The Hindoo sound was "China," and the character for "branch" was therefore without doubt known as *chi* when the transcription was made from Sanscrit. In transcribing this sound for use in Japan the fact that *si* was the syllable selected is highly in favour of the view that there was no *chi* at that time in the Japanese alphabet. When afterwards *ti* became *chi* it was also adopted occasionally by the later Japanese for writing the name of China. The sound *si* is, however, by far the most prevalent and is the only one given in the two dictionaries I have at hand.

6. Etymology is in favour of the view that *ts* or *ch* has come from *t*. Thus *tobi*, "to fly," may be regarded as akin to *tsubasa*, "wings." The sibilization of *t*, following on the change of *o* to *u*, should not hide from us the natural relationship of words like these. The Mongol word for birds is *shibegun*. In colloquial Mongol it is *shobo*. The vowel *i* causes the change of the initial *s* in Mongol to *sh*, and in this the student of Japanese will recognize a peculiarity in the pronunciation of the syllable *si* in that language also, as carefully described by Mr. Satow. The comparison of the Japanese word *tobi* with the Mongol *shibegun* explains it as meaning "that which flies."

The Mongol negative *dei* in *iredei*, "he is not come," is like the Japanese *dzu* in *atawadz*, "he cannot," *Chichi* and *tete* both, in Japanese, mean "father," and may be identified if we recognize the change of *t* to *ch*.

Chigai and *tagai* both mean "to differ."

7. The original characters used by the Chinese from which the Japanese signs for *chi* and *tsu* were formed may be appealed to for evidence on the early phonetic value of those symbols. They will form a seventh ground for the conclusion that these signs were at first *ti* and *tu*.

The primitive types of the running hand (*hiragana*) forms of ち *chi* are, in a Japanese book I have, given as 知 *chi*, "know," and 遅 *chi*, "slow." In Julien's *Méthode pour dechiffrer et transcrire les noms*

Sanscrits qui se rencontrent dans les Livres Chinois,[1] these characters are representative of the Sanscrit syllables *ti* and *di*. The Chinese, then, at the time of the Buddhist transcriptions, read these characters *ti* and *di*.

In the 36 initials of Kang hi 知 *chi* (old sound *ti*) is the ninth. Underneath it are arranged a large number of words which in Japanese need to be spelt with the help of *chi* or with *si*. The Japanese transcribers always chose *chi*. I suppose the reason of this is that all those words beginning with *ch* in Kang hi's rhyming tables which are arranged under 知 were, in the Tang dynasty and before, pronounced with *t* or *d* instead of *ch*, and that these were the sounds the Japanese transcribers had to express whether they used *Go Won* or *Kan Won*.

Of *tsu* the Chinese primitives in my authority are, first, 円 *teu*, old sound *tu*, Japanese *tou*. The second *hiragana* primitive of *tsu* is 都 in running hand. It is pronounced by the Japanese *to* and by the Chinese *tu*. The third source of a running hand form of *tsu* was 徒 *t'u*. It is by the Japanese called *to* and by the Chinese *t'u*, old sound *do*. In Julien's *Méthode* the first and second of these three characters *teu*, "contend," *tu*, "metropolis," are both of the value *tu* in Sanscrit transliteration.

The reason why the Japanese do not use *tsu* in spelling these characters seems to be in the vowel and not in the consonant. It is constantly used in writing the sound of *tu*, "earth," "dust;" *tui*, "a couple," *t'ung*, "to communicate," etc., where the inserted *s* is highly superfluous. The most of such Chinese characters as commence with *ts* are written by the Japanese *su* as remarked above.

8. An argument may be drawn from the regularity of the Japanese transcription of Chinese sounds in many points to defend the thesis that it was so in this.

In the whole horizon of philology there is perhaps no greater chaos at first view to be found any where than in the Japanese transcription of Chinese sounds. This is probably a not uncommon opinion among students. Inquiries of the kind presented in this paper will greatly tend to restore that chaos to order.

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[1] Julien's Méthode, pp. 202, 203.

Among the most striking anomalies is the occurrence of *k* for the Chinese *h*. I propose to explain this in the following manner. There was no *h* at the time of the transcription in the Japanese syllabary. The modern Japanese *h* was then *p* and *b*, or perhaps *b* only. Careful inquiry into the time of the introduction of the *nigori* mark for distinguishing surds from sonants will help to show whether *p* and *b* both existed at the time of the Japanese transcription or only *b*. The Japanese having no *h* took *k* and *g* instead. I here assume that *k* and *g*, with *p* and *b*, both existed in Japanese formerly as now.

Sometime after the transcription of Chinese sounds, the letter *h* sprang into existence in the *p* and *b* series on account of a national habit of pronouncing *p*, *b* and *f* negligently, Through the increasing force of this bad habit of indistinct utterance, the *h* itself disappears in some cases, so that we find *wa* instead of *ba* and *yi* instead of *hi*. The Japanese have not yet so changed their writing as to accommodate these modern irregularities with a place in its recognized symbolism, and so *ba* and *hi* are written one way and pronounced another. Of this we English cannot complain, seeing that we are a hundred times worse in this respect in our own orthography.

If this history of the letter *h* be admitted, not only may the occurrence of *k* for the Chinese *h* be explained, but also a mass of peculiarities belonging to the Japanese transliteration of Chinese sounds beginning with *p*, *f*, and the (in most dialects) lost *b*.

Another instance where the symbols in the Japanese syllabary have changed their value since the invention of the marks is the *n* final. It wavers between the sounds *ng*, *n* and *m*. At present *ng* is the favourite sound. *N* is the sound intended by the orthography. *M* is an old sound formerly assigned and written, when so pronounced, in place of final *n*. Mr. Satow shews that in old times *mu* was extensively used in place of final *n*, and that its being written in the early work called 萬葉集 *Wan ye tsi*, *Man yep 'zip*, is proof that the later sign for final *n* was not then invented. The introduction of final *n* into the syllabary would follow on the early change of final *m* to final *n*.

Thus the Chinese finals *ng*, *n*, *m*, are not represented very satisfactorily. The vowel *u* represents final *ng*, and this is uniform. But

n and *m* were both represented by a single sign, first by *mu*, then by *n*. The cause of this was in the defects of the Japanese vocal organs, which fail miserably in the imitation of final letters.

As a consequence, we find that when the *hiragana* characters are illustrated by selection of about four or five Chinese symbols to each sign in the syllabary, a great indifference to finals is observable. *Na* stands for the Chinese *na*, *nan* and *nai*. *Te* stands for *t'ien*, *ti*, *t'ing*, *chuen*. But the old sounds of these four words were *t'en*, *te*, *deng*, *ten*. They all agree in having the same vowel and in having a dental initial mute. There is indifference in regard to the final letter.

Under the *s* group are arranged all words in *ts*, *s*, *sh* and *ch*. Thus under *sa* are arranged *tso*, "left," *cha*, "mistake," *san*, "scatter," *tso*, "to assist," *sie*, "crooked," *sie*, "to thank." The real sounds were *tsa*, *cha*, *san*, *zia*, *sia*, or nearly so. Under *si* or (as it is given by Hepburn and usually heard) *shi*, are placed *chï* 之, "of," *sin* 新, "new," *shï* 事, "a thing," 志 *chï*, "will." These characters are never written with the *chi* of the Japanese syllabary, but always with *si*. This uniformity should teach us something in regard to changes in the initial letters of both languages.

In regard to the Japanese language, its poverty in letters becomes conspicuous when the transcription is fairly considered.

There was no *sh*, no *ts*, no *h*, no *f*,[2] no *ch*, and possibly no double set of surds and sonants. Nor was there an aspirate series. There were only five vowels.

In Chinese there were all the letters just mentioned in which the Japanese were deficient except *f*, which has come in since. But since that time the distinction of surd and sonant has been lost from mandarin, while it remains in local dialects.

If the view here given of the original absence of *sh* in Japanese is correct, the Hizen usage of *si*, as noted by Mr. Satow, page 15, is older than the more common *shi* of Yedo and Kiôto. Mr. Satow suggests that the old Japanese *s* may have lain between *s* and *sh*. The Hizen people change *s* before *e* into *sh*.

[2] That *fu* did not exist is shewn as follows:—The characters 不, *pu* "not," 布, *pu*, "cloth," *bu*, "woman," 婦, are the types of the *hiragana* characters for *fu*. Also *jifu* for 十, *jip*, "ten," shews that the Japanese *fu* was formerly *pu*.

For philological purposes it is not essential to have separate marks for all nice differences of sound. In a dictionary it is very convenient to have the written form of Japanese adhered to in the way that Mr. Satow proposes. There would be less difficulty in using Dr. Hepburn's dictionary if Mr. Satow's orthography were adopted as the basis of the alphabetical arrangement. We should not like to have to look for the word "beauty" in an English dictionary under "byuti," instead of under the usual orthography.

REPLY TO DR. EDKINS ON "CHI" AND "TSU."

By Ernest Satow.

[*Read January 13, 1880.*]

In my paper on the "Transliteration of the Syllabary" I said that 'there was nothing to show that 千 and *ti* were ever identical, and that there does not exist any evidence in support of the supposition that *tsu* and *chi* are corruptions of *tu* and *ti*.' Dr. Edkins thinks that he has adduced evidence to prove the contrary, in the paper which has just been read, and at first sight he may appear to have done this successfully; but an examination of his arguments will, I think, show that they are by no means conclusive.

Before proceeding further, it may be remarked with reference to the views put forward by Dr. Edkins on this subject in his "Study of the Chinese Characters," pp. 180-183, that the date assigned by Japanese annalists for the introduction of Chinese learning is not trustworthy. A glance at their chronology shows that it contains grave errors, and that before the 5th century considerable deductions must be made from the antiquity ascribed to the events recorded. The date 286 A.D., apparently accepted by Dr. Edkins as accurate for the embassy of the Korean Achiki (as Motowori pronounces the name), should be placed perhaps about the year 400. There is no evidence that Wani (王仁), the professor who came over to teach Chinese to the Mikado's heir-apparent, taught him the so-called Go-oñ. This is the hypothesis of Motowori; but other Japanese writers, such as Arawi Haku-seki and Da-zai Shiyuñ-tai have held the opposite opinion, the fact being that nothing certain is known about the matter, not even that the Go-oñ and Kañ-oñ were derived from the parts of China ruled over by the

different dynasties known as Han and Wu. It is equally uncertain whether the Go-oñ is more ancient than the Kañ-oñ or *vice versâ*, so that arguments based on the former supposition are in reality without foundation. Dr. Edkins describes the Tau-iñ (which he miscalls To on) as "a sort of metropolitan pronunciation, probably representing the language as spoken in the Tang dynasty at the Chinese capital. In 605 five Japanese students spent a year at that city." But as Mr. Aston explains in the introduction to the second edition of his "Grammar of the Japanese Written Language," this is a term applied by the Japanese to the modern official Chinese language. It has nothing to do with the dynasty which was called T'ang, and is of comparatively recent introduction, certainly not before the 17th century. In fact the Tau-iñ was introduced by the the monks of Wau-baku-Sañ, near Uji in Yamashiro, towards the end of the 17th century, about 800 years after the T'ang dynasty came to an end, and it was called Tau-iñ because it was supposed to be the "Chinese sound" of the Chinese characters at the time of its introduction. Go-oñ and Kañ-oñ, in the same way, probably meant nothing more than the "Chinese sound," or what was thought to be the Chinese sound, at the period when they respectively became the fashion. So we have, as Mr. Aston observes in the introduction to his "Grammar of the Written Language," *Kañ* frequently occurring in compounds in the sense of 'Chinese,' and *Go* in Go-fuku (silk goods) no doubt equally meant Chinese when it first became a current phrase. "Kibidaishi," mentioned by Dr. Edkins as the inventor of the *kata-kana* syllabary, is called Kibi Dai-zhiñ (大臣), not Dai-shi. He was not a Buddhist monk, but a minister at the court of the Mikado.

Dr. Edkins states that "the sound intended by ヴ, the Japanese *wu*, was at first *ng*. Afterwards the sound *ng* became attached to the symbol ン, and the letter *wu* passed from a nasal into a vowel." This amounts to saying that the original value of ヴ, when it was adopted by the Japanese to represent one of the sounds of their language, was *ng*, which is certainly not the case. The Chinese character from which ヴ is derived is probably 宇, which is one of the characters anciently used in spelling words where the later *kata-kana* ヴ is now employed. Other Chinese characters used concurrently with 宇 were 于, 羽, 有 and 烏, the modern

sounds of which in some dialects are *u*, *ü*, *iu*, *yü*, *o* and *u*. It can hardly be supposed that the Japanese originally adopted either of these to represent *ng*. They did not invent *kana* for the purpose of marking the sounds of Chinese characters; but for writing their own language, in which *ng* probably did not exist at that period. The pronunciation of Chinese characters was handed down orally, and those only had to be transliterated which had been naturalized as Japanese words—and these were extremely rare up to the beginning of the 11th century. The earliest prose in *kana* contains hardly any words of Chinese origin. There can be little doubt that ウ was adopted to represent the vowel *u*, and that being the nearest thing to the Chinese final *ng*, it was used to represent it when the first dictionaries with transliteration were compiled.

It is the next paragraph but one (Study of the Chinese Characters, p. 181) that contains the statement to which I objected, namely, that "the Japanese *chi* was first *ti* and *di*, and afterwards changed to *chi*, *zhi*. This was between A. D. 280 and 605. This change did not take place in the Chinese language, but in the Japanese. Thus 丁 has never changed in Chinese to *ching*, yet it is sounded by the Japanese *chi ya wu*. The syllable changed its value therefore soon after A. D. 280." *Zhi* of course should be *ji* (チ), but this is perhaps a misprint, just as in my own remarks on this passage *shiyau* was wrongly printed *chiyau*. The last sentence here quoted appears to contain a justification of what I had said, namely, that there was no reason to suppose that the sign チ was pronounced *ti* at the time of its adoption, for no one supposes that the *kata-kana* or *hira-gana* had been invented or had come into use until the 8th century at the earliest, long after the period at which Dr. Edkins says that the change occurred. But this does not agree with what he asserts in the paper before the Society.

He maintains "that the sound was *ti* at the time and afterwards changed its value. If they had no *ti* in their language they would have made one." This is not likely. There were many other characters and sounds which the Japanese could not transliterate accurately, the final *ng* being one of them; such as 車, 暑, 書, which have to be spelt *shi ya* and *shi yo*, though those spellings were much farther from the Chinese pronunciation than *sha* and *sho* would have been. So also *chi ya* for

茶, *chi yu* for 住, *chi yo* for 寧, instead of *cha*, *chu* and *cho*, which are nearer to the original sounds than the make-shifts adopted by the Japanese to represent them. In these spellings the *y* seems to have been used instead of the simple vowel, because the ancient Japanese could not pronounce two vowels directly following each other, and either *y* or *w* had to be inserted. Perhaps this is a ground for thinking that ウ was at first *wu* and then degenerated into *u*. Syllabic characters for *sha*, *sho*, *cha*, *chu*, *cho* would have been very useful for writing Chinese words, and there was every reason to invent such, if the Japanese had been inclined to supply new wants in that way. As they did not contrive anything new, but simply turned the existing material to account in these cases, there would be even less likelihood of their making a new *kana* for *ti*, the necessity of which was less apparent, if they had *chi*, which was near enough for their purpose. It is not to be supposed that the Japanese were any more precise about preserving the correct pronunciation of Chinese words adopted into their own language then, than they are now in the case of words which they take from modern European languages. Dr. Edkins asks whether there are any Japanese who cannot pronounce *ti* and *tu?* The experience of every teacher of foreign languages in this country must be that they can, if trouble is taken to teach them, but that it requires an effort on their part to overcome their native tendeney to say *chi* and *tsu*.

If "*tsu* is *t* in certain positions" that does not prove very much. In Japanese words where this *tsu* is found, it is a mere phonetic device for aiding to represent a *tt* which is a corruption of something else. Thus *motte* and *yotte* are corruptions of *mochite* and *yorite*, the former of which was *mote* in the earlier Japanese. All these double consonants are comparatively modern in Japanese words. Thus *mattaku*, written マツタク, was formerly *mataku; massugu*, マツスグ, perfectly straight, was *ma sugu; mappira*, マツピラ, humbly, was *ma hira*. In compound words of Chinese origin a final *tsu* in the first element becomes *k*, *p*, *s*, *t*, according to the nature of the consonant which follows, and arguing from these cases it was natural to adopt the habit of representing the first part of a double consonant in Japanese words by the same device. It is in any case quite a modern practice.

The arrangement of the *kana* in groups of five is much later than

their invention. If the arrangement in fives were earlier, we should no doubt have had a complete and symmetrical arrangement of fifty *kana* altogether. But the *iroha* is far older. Even in the *kuwañ-geñ oñ gi* (1185) and the abridged Wa-miyau Seu (1546) the characters given are Chinese, and the "Scheme of the Fifty Syllables and Finals" in *kana* has only been presented by the modern grammarians of the last hundred years. Motowori thinks that the table was constructed for the use of monks who studied Sanskrit. Even if that were the case, the consciousness of every Japanese that in inflecting a verb with a root ending in a dental the change was *chi*, *tsu*, *ta* and *te* would lead him spontaneously to range all four in the same column, without his pronouncing ツ and タ as *tu* and *ti*.

I do not dispute the position that *tu* and *ti* may be the old sounds and *tsu* and *chi* corruptions, but I maintain that there is no evidence that such a change took place subsequently to the invention of the *kata-kana* and *hira-gana*, and as I have shown by a quotation from his writings on the subject, Dr. Edkins himself ascribes the change to a period many centuries anterior to the use of the popular syllabaries.

The argument that because they write Chinese words like *ts'un*, inch, with an initial *s* instead of *ts*, the Japanese cannot have possessed the syllable *tsu* when the transliteration was fixed, is very plausible. In fact, not only in the case of *ts'un*, but also in that of all other modern Chinese syllables, beginning with *ts*, as (*tsu*, *ts'u*, *tsou*, *ts'ou*, *tsŭh*, *ts'ŭh*, *tsun*, *tsung*,) *tsa*, *tsai*, *tsan*, *tsang*, *tsêng*, *tsao*, *tse*, *tsi*, *tsiang*, *tsing*, *tso*, the Japanese initial belongs to the dental sibilant-series, and is either *sa*, *se*, or *shi*, simply because the Japanese not having *tsa*, *tse* and *tsi* in their syllabary, used the nearest approach they possessed. The transcription *soñ* (originally *somu*) must have come from Chinese *tson*, which they could not render with exactness, as they had no *tso*, and as already observed, they preferred helping themselves out with what already existed ready to their hand, to inventing new instruments for recording sounds. As they did this in the cases of *tsa*, *tse*, *tsi* and *tso* it is not to be wondered at that they used *su* for *tsu*.

An analysis of the modern Chinese syllables which begin with *ch*, shows that by far the largest number have タ in the Japanese transcriptions, those which begin with シ being next most numerous, while

the rest begin with テ, セ, タ, and サ. It seems natural to infer that the words transcribed by the Japanese with シ, セ and サ had an initial *t*, and that *tsi*, *tse* and *tsa* have since become *chi*, *che* and *cha* in China, while the consonant transcribed with チ had already undergone the change into *ch*. In other words that some of the Chinese sounds which have now an initial *ch* had *ch* and others *ts* at the time the Japanese transcription was settled. In a few cases there are two transcriptions, e.g. 茶, which is both *sa* and *chiya*, showing that the word was *tsa* in one and *cha* in the other dialect from which the Go-oñ and Kañ-oñ were imitated.

In the Mañ-yefu-shifu and Ko-zhi-ki the characters where we now have the *kata-kana* チ are 知, 智, 遲, 治, 耻, and 地, all of which, excepting the last, are *chi* or *ch'i* in the modern Chinese, and were probably so in the dialect from which the Japanese adopted them. It is clear that the Japanese did not possess both *chi* and *ti*, and they would pronounce both in accordance with their capacity, and then apply both to the purpose of recording the native syllable. For *shi* they used 志, 思, 之, 四, 師, 斯, 子, 指, 此, 司, 詩, 死, 侍, 旨, 次, 跡, 詞, 縮, 偲, 事, 水, with 自, 慈, 寺, 士, and 時, for *zhi*, besides 信, 新, 進, 盡 and 式, of which they omitted the final, in the Mañ-yefu-shifu, and in the Ko-zhi-ki 斯, 志, 師, 色, 紫, 芝, for *shi*, with 士 and 自 for *zhi*. Some of these begin with *ch*, others with *s*, *sh* or *ts* in the modern Mandarin; in the last three cases it is evident that the Japanese adopted two almost without change and omitted the initial *t* of the other, and if the present *ch* is simply a changed *ts* then that case is also disposed of.

The signs used for *tsu* in the same early books are 都, 豆, 頭, 通, and 追, of which the first three were adopted entire, the remaining two being shorn of their finals. They must have been originally pronounced *tu*, *tui* and *tung* in the Go-oñ from which all but the last were taken; the Kañ-oñ are *to*, *tou*, *tou*, and *tou* (for *tong*). *Tsuwi* is the Kañ-oñ, *tai* the Go-oñ of 追, so that this *kana* was taken from the Kañ-oñ, which is rather curious. All other syllables which have *tu* in modern Chinese, have *to* or *ta* in the Japanese transcription, with a very few exceptions in which the initial consonant is *s*, owing to a difference in the dialect imitated.

I entirely agree with Dr. Edkins' remarks as to the use of *k* in

Japanese to represent the Chinese *h*. There certainly is not at the present day, and probably never was, any such sound as a guttural *h* in the Japanese language, and a modern Japanese, if asked to pronounce a Chinese word beginning with *h*, would inevitably change it into *k*. The letter *h* in Japanese is an aspirated labial, and is used in transliterations by Europeans because it comes nearer to the Japanese consonant than any other letter in our alphabet, except before *u*, when it appears to be pronounced more like *f*. Probably the sound was *f* before the other consonants in earlier times, but we have no evidence when the change from *f* to *h* took place in the standard speech of the metropolis. In the earlier Japanese literature the sonants were undistinguished from the surds and aspirates by any marks, and the earliest example of a work in which the *nigori* was used is the *Miyau-moku Seu*[1] (名目抄), which was printed from an exact transcript of a copy made in the year 1500, as the colophon at the end of the volume states, special care having been taken to insert the *nigori* and other marks of the original MS. The fact seems to have been that it mattered little whether the sonant or the surd were used, or in the case of labials, whether the sonant or the aspirate were pronounced, at a period when each syllable was given uncontracted and unaltered. Even at the present day a Japanese will often find it difficult to decide which ought to be used in the case of a particular name, a familiar example of which is the dispute whether we ought to say Ohozaka or Ohosaka for the great commercial city at the mouth of the Yodo-gaha. It appears, however, that in the 8th century the difference was recognized, for in the Ko-zhi-ki different *kana* were used for the sonants and surds with considerable consistency. But I do not think that any evidence exists by which the period at which the aspirate labial *h* sprang into existence can be determined. If the Japanese of the capital had already acquired the habit of pronouncing *f* so carelessly as make it sound in most cases like *h*, they would not have taken the trouble to learn the Chinese *p*, although recognizing that it was closely related to their own sound, and they would therefore have no hesitation in adopting Chinese words beginning with *p* for their own

[1] The apparent author was Sanehiro Sa-dai-zhiñ, who was appointed to that office in 1455. The copy was made in 1500 and the transcript belonged to Yamashina Dai-na-goñ, b. 1507, d. 1579.

'pure' labial. We do not know when the terms *sumi* (*sei*) and *nigori* (*daku*) were first employed, though it is clear from the above quoted colophon that they are anterior to the end of the 15th century. What I wish to point out is that the inventor of these terms evidently looked upon the surd or aspirate as the original sound (*sumi*=pure) and the sonant as the corruption of it (*nigori*=foul), so that if *h* and *f* are descended from *p*, the change took place so early that all memory of it had been lost when the Japanese first began to discuss these questions, and that a tradition to the contrary must have then existed.

CATALOGUE OF THE BIRDS OF JAPAN.

By T. Blakiston and H. Pryer.

[*Read January 13, 1880.*]

Introduction.

Since the publication of Temminck and Schlegel's *Fauna Japonica*, the materials for which were mostly supplied by Dr. Franz von Siebold, who may be fairly styled the father of Natural History in Japan—no comprehensive treatise on the ornithology of this country has been written, although various papers have been published in scientific journals on collections made, notably Cassin's "Report on Commodore Perry's U. S. Expedition"; Blakiston, "On the Ornithology of Northern Japan," published in the *Ibis* of October, 1862; Mr. H. Whitely, "On Birds collected near Hakodate," *Ibis*, 1867, p. 193; and several contributions by the late Mr. R. Swinhoe on the birds of Yezo, to the *Ibis*, from April, 1874, to April, 1877; as well as a preliminary catalogue furnished by the present compilers to the *Ibis*, and published therein in July, 1878, and Mr. H. Seebohm's notes on the same, also published in the *Ibis*.

Few persons living in Japan, unless specially interested in ornithology, have probably seen any of the above, and the nomenclature having been scientific only, it has been suggested to the authors of this paper that a contribution to the "Transactions of the Asiatic Society of Japan," which has so large a local circulation, might, if not made too scientific, be of assistance to persons interested in the ornithology of Japan, as well as of interest to sportsmen and others who incidentally obtain specimens of birds and who may frequently be able to contribute

information of much value. Consequently the following catalogue has been compiled, which, however, must not be taken as in any way complete, the authors trusting only that its publication will elicit fuller information on the range of known species, as well as tend to the discovery of the existence of others; so that they, or some more competent persons, may at a future time be able to revise it with a view to republication. They will therefore be happy to receive specimens, either skinned or fresh, of any birds whatever, and will undertake to furnish the senders with the names, when known, or any other information in their power, specially recommending collectors to pick up birds of unattractive appearance, as it is usually among such that rarities are to be found. They will also undertake to make public the name of the finders, and to return the specimens, if so desired, after comparison. In this way it is hoped that very considerable additions may be made to the knowledge of the avi-fauna of Japan, which has a special interest among ornithologists owing to the situation of these islands off the extreme east of the continent of Asia.

As a sample of what may be done by very limited research, the compilers may mention that the "Fauna Japonica" list, which included many very doubtful species, and others on the sole authority of Japanese drawings, did not number two hundred distinct species, whereas the present catalogue extends beyond three hundred, and, as has been mentioned before, is probably very far from being a complete one.

The compilers have examined and compared most of the specimens of birds existing in the government museums at Toukiyau, namely in the Yamashita Haku-butsu-kuwañ of the Nai-mu-shiyau, in the Keu-iku Haku-butsu-kuwañ of the Moñ-bu-shiyau, and in the Kai-taku-shi at Shiba; besides the museum of the Kai-taku-shi at Satsuporo, in Yezo, as well as the collections of Mr. Ota of Toukiyau, Drs. Manning, Ahlburg and Hilgendorf, and Mr. F. Ringer of Nagasaki. They have, moreover, a number of specimens in their private collections, and the Hakodate Museum—which is open to public inspection—contains most of the specimens collected principally in Yezo and the Kurile Islands by one of the authors and Mr. N. Fukushi, Chief of the Survey Department of the Hoku-kai-dou.

The compilers' thanks are due to several persons who have supplied them with specimens, and to Mr. Tanaka, director of the Haku-butsu-kuwañ, who allowed them to examine a collection of drawings by native artists; while Mr. Ota's intimate knowledge of the birds of his own country has been of much assistance.

The arrrangement of this catalogue is that of Dr. Carl Claus in his *Grundzüge der Zoologie*, a perhaps rather unusual classification; but the best ornithological authorities so differ on this matter, that it is of very little consequence what system is followed.

All species included in the following list have the authorities on which they rest stated; and duplicates have in most instances been sent to Europe for comparison to the late Mr. R. Swinhoe—who was the greatest authority on the birds of Eastern Asia—Dr. P. L. Sclater, Secretary of of the Zoological Society of London, and Mr. H. Seebohm, with whom the compilers are still in correspondence. Such identifications are enumerated under each species, and the volume and page of the *Ibis*, the best ornithological magazine in Europe, referred to.

Beauty, Song, Etc.—A very common remark made by foreigners here, is that this country possesses few birds, and those that are found are not remarkable for either beauty or song. To some extent this is true of the neighbourhood of the settlements, but it is a great mistake to suppose that the Japanese birds are at all deficient, either in numbers or other respects, in the wilder parts of the country.

As an example of this, one of the writers made a hurried visit to Fuji-sañ for the purpose of collecting birds, and although the weather was very unfavorable during the few days he was there, 44 species were obtained and a number of others observed. Among those obtained were several specimens of Tchitrea Princeps. When alive, this bird rivals in beauty any denizen of the tropics. The head is crested and glossy black, merging into a rich purple on the back; the breast is creamy white, the wings are dark, and the tail has two long feathers sixteen inches in length. Around the eye it has a fringe of skin of a torquoise blue, and the beak, which is large, is of the same color. Beautiful in itself, it delights in choosing nature's most picturesque spots in which to build its nest. This pretty little structure is often placed at the end of a moss-fringed branch overhanging the little mountain brooks,

which come foaming over the grey, fern-clad boulders. Three species of Thrushes, all good songsters, abound on Fuji-sañ. Two of the Flycatchers, Xanthropygia Narcissina and Cyanoptila Cyanomelana, both very beautiful, sing sweetly, and the chorus of birds there in the early morning is truly delightful.

Among other beautiful birds particularly noteworthy, Japan possesses two species of Pheasants peculiar to the country. The Mandarin Duck, although having a wide range, is quaintly beautiful and not uncommon; the Falcated Teal, and when flying in the sunlight, the Japanese Ibis (Ibis Nippon). All these birds, to be appreciated, must be seen alive and in full plumage,—dried specimens conveying but a poor idea of the living examples.

Geographical Distribution.—We know that 180 of the species found here also occur in China, and about 100 are identical with those of Great Britain. Most of these have been carefully compared by the late Mr. Swinhoe, and there are a number of others which approximate very closely and ought, perhaps, to rank only as sub-species.

Nidification, Etc.—We think most of the birds included in our list will be found breeding in some part or other of this country. We have obtained eggs, nestlings, or young birds of 68 species, but have not had an opportunity of visiting the breeding grounds of any of the sea birds, which we know stop here all the year, or the number would be considerably enlarged. The following we have obtained:—

Tinnunculus Japonicus, T. & S.; Spizaetus Orientalis, T. & S.; Milvus Melanotis; Syrnium Uralense, T. & S.; Ninox Japonica; Schoenicola Yezoensis, S.; Euspiza Sulphurata, T. & S.; Emberiza Personata, Pall.; Emberiza Ciopsis, Bp.; Alauda Japonica, T. & S.; Oreocincla Aurea, Pall.; Turdus Sibericus, Pall.; Turdus Chrysolaus, T.; Turdus Cardis, T.; Hypsipetes Amaurotis, T.; Monticola Solitaria, Müll; Ianthia Cyanura, Pall.; Lavivora Cyane, Pall.; Erythacus Akahige, T. & S.; Cinclus Pallasi, T.; Troglodytes fumigatus, T.; Locustella, cursitans, Frank; Phylloscopus coronatus, T. & S.; Cettia Cantans, T. & S.; Motacilla boarula, Scop.; Motacilla lugens, T. & S.; Anthus maculatus, Hodg.; Acredula trivirgata, T.; Parus varius, T. & S.; Parus minor, T. & S.; Tchitrea princeps, T. & S.; Pericrocotus cinereus, Safr.; Xanthopygia narcissina, T.; Cyanoptila cyanomelana, T. & S.; Lanius

superciliosus, L.; Lanius bucephalus, T. & S.; Sturnia pyrrhogenys, T. & S.; Sturnus cineraceus, T.; Garrulus Japonicus, Bp.; Nucifraga caryocatactes, L.; Cyanopica cyanus, Pall.; Corvus corone, L.; Corvus Japonensis, Bp.; Caprimulgus Jotaka, T. & S.; Chelidon Blakistoni, S.; Cecropis erythropygia, Sykes; Hirundo gutteralis, Scop.; Zosterops Japonicus, T. & S.; Halcyon coromanda, Bodd; Ceryle guttata, Vigors; Alcedo Bengalensis, Gm.; Picus major, S.; Turtur gelastis, T.; Coturnix Japonica, T. & S.; Phasianus Sœmmeringii, T.; Phasianus versicolor, Viell.; Gallinula chloropus, S.; Rallus Indicus, Blyth; Herodias garzetta, S.; Nycticorax griseus, L.; Gallinago Australis, Lath; Lobivanellus inornatus, T. & S.; Anas Zonorhyncha, S.; Podiceps Phillipensis, Bonn.

Japan possesses the advantage of covering a large area, running north and south; this is no doubt the cause of our finding many species resident throughout the year only partially migrating from one part of the country to another. Even some insect-feeding birds remain as far north in winter as the neighbourhood of Yokohama, and one of the writers remembers shooting together Ruticilla Aurorea and Ianthia Cyanura, which were too busily engaged fighting to observe his approach, during a snow storm in January, some years ago. The latter stays high up Fuji-sañ during the summer, and only migrates to the plains at the foot in the winter, and Ruticilla Aurorea was observed wintering on Ohoshima (Vries) in considerable numbers. Cettia Cantans stops all the year about Yokohama, and its song may be heard early in March.

Japanese Pheasants.—We have seen a pair of hybrids between Phasianus Versicolor and Sœmmeringii. The cock is exceedingly beautiful. It has the head and tail of the Green Pheasant. The body is a shining auburn, and the tail is more fan-shaped and longer than the Green Pheasant, but is barred like it. The hen is large, but otherwise hardly differs from Phasianus Versicolor.

Phasianus Versicolor and the Chinese Phasianus Torquatus readily interbreed in a wild state, and the progeny is generally larger than either of the parents; a number of Phasianus Torquatus were turned out at different places near Yokohama, Kaube and Nagasaki a few years ago, and more hybrids have since been shot than thoroughbred P. Torquatus. Since these birds were turned out, quite a number of

small birds having the plumage of the cock, but which are undoubtedly hens, have been procured. It is well known that this so-called hermaphrodite state is accompanied by an organic defect, and we think that there is good reason for supposing that those we have obtained exhibiting this state of plumage may be the second generation of hybrids, as some of the specimens show signs of the white ring round the neck; and further, the comparative abundance of this form since Phasianus Torquatus was introduced leads us to think that hybridization may be the cause of the defective organization. All these cock-hen birds proved on dissection incapable of propagating their species.

Zoological line of Demarcation.—As far as our observations go, the following birds are confined to Yezo:—

Harelda glacialis, Tetrates Bonasia, Picus Minor, Dryocopus Martius, Corvus Corax, Ampelis Garrula, Acredula Caudata, Leucosticte Brunneinucha, Gecinus Canus, Garrulus Brandti. The following do not cross the straits of Tsugaru northward:—Lobivanellus inornatus, Phasianus Versicolor and sœmmeringii Gecinus Awokira Cyanopica Cyanus, Garrulus Japonicus, Acredula Trivirgata.

Further observation may prove that some of the above-mentioned species are not strictly confined to these limits, but of the following six species Gecinus Canus (Yezo), and Awokira (Main Island), Acredula Caudata (Yezo), and trivirgatus (Main Island), Garalus Brandti (Yezo), and Japonica (Main Island), it is interesting to observe how one species replaces the other in their respective districts. The Straits of Tsugaru are from fifteen to twenty miles across, but the fauna and flora of the two islands indicates a far greater difference than is shown by a glance at the map of the two islands. These straits are doubtless a zoological line of demarcation. For instance, in the mammalia the bear of Yezo is a northern species, and the bear of the Main Island was for a long time thought to be identical with the Ursus Thibetanus. Neither the sheep-face antelope, Nemorhedus crispa, or the Japanese monkey, Innus speciosus, or the boar, Sus leucomystax, have crossed the straits, although both the antelope and monkey are well fitted to bear the cold of Yezo, and are indeed found on the mainland bordering the northern shore. We also find the same rule holds good with the

7. BRACHYRHAMPHUS UMISUZUME, Tem.

Specimens in the Hakodate Museum, collected at Hakodate, and by Mr. F. Ringer at Nagasaki. Also obtained by Commodore Perry's expedition at Shimoda and in Toukiyau Bay. Given in the 'Fauna Japonica.'

8. BRACHYRHAMPHUS ANTIQUS, Gm.

Grey-headed Auk. Jap. 'Umi-suzume.'

Specimens in the Hakodate Museum from Hakodate and Toukiyau. Specimens in the Toukiyau Museums. Also obtained at Skotan Island, off the east estremity of Yezo, by Mr. N. Fukushi.

Very abundant in Toukiyau Bay in winter.

9. BRACHYRHAMPHUS KITTLITZI, Brandt.

Specimens in the Hakodate Museum, duplicates of which were referred by the late Mr. R. Swinhoe to this species. ('Ibis,' 1874, p. 166, et 1875, p. 458.)

10. URIA CARBO, Pall.

Black-winged Black Guillemot. Jap. 'Keima-furi.'

Specimens in the Toukiyau Museums and Hakodate Museum, the latter collected on coast of the Yezo, where it is not uncommon. (Swinhoe, 'Ibis,' 1875, p, 458.)

Mr. H. Whitely included *U. grylle* in his list ('Ibis,' 1867, p. 210), probably in mistake for this species.

11. URIA TROILE, L.

Common Guillemot. Jap. 'Umigarasu.'

One specimen obtained at Hakodate, in the Museum there, is referred to this species.

12. URIA BRUNNICHI, Sab.

Brunnich's Guillemot. Jap. 'Ugamo.'

Specimens collected in Yezo and the Kuril Islands in the Hakodate Museum. (Seebohm, 'Ibis,' 1879.)

13. CERATORHYNCHA MONOCERATA, Pall.

Horn-billed Guillemot. Jap. 'Utou.'

Very common on the coast of Yezo. Specimens in the Hakodate Museum. (Swinhoe, 'Ibis,' 1874, p. 166.)

Occasionally obtained in Toukiyau Bay.

14. Podiceps cornutus, Gm.

Sclavonian Grebe.

Specimen in the Hakodate Museum, collected there, and by Mr. F. Ringer at Nagasaki. (Swinhoe, 'Ibis,' 1875, p. 456: Seebohm, 'Ibis,' 1879.)

15. Podiceps cristatus, L.

Great Crested Grebe.

Mr. H. Whitely included this in his list ('Ibis,' 1867, p. 208). Specimens in the Hakodate Museum from that locality.

This is probably the bird figured in the 'Fauna Japonica' as *P. rubricollis major*.

16. Podiceps phillipensis, Bonn.

Jap. 'Kaitsumuri.'

Breeds about Yokohama. Common on ponds and moats in Toukiyau; also common in Yezo in summer. Specimens in the Toukiyau Museums and the Hakodate Museum from both localities. (Swinhoe, 'Ibis,' 1875, p. 456.)

Nest built on the water, composed of dead-water plants. Eggs, 3 to 5, always very much decolored, $1\frac{6}{10}$ in. long.

17. Podiceps auritus, Lath.=*Nigricollis*, Gml.

Eared Grebe. Jap. 'Hajiro-kaitsumuri.'

Common in Toukiyau Bay in winter, and in Yezo. Also obtained by Mr. F. Ringer at Nagasaki. Specimens in the Hakodate Museum.

18. Colymbus arcticus, Linn.

Black-throated Diver. Jap. 'Oho-hamu.'

Common in spring in Hakodate harbour. Also obtained by Mr. F. Ringer at Nagasaki.

Specimens in the Hakodate Museum. (Whitely, 'Ibis,' 1867, p. 208: Seebohm, 'Ibis,' 1879, p. 22.)

A specimen sent to the late Mr. R. Swinhoe from Hakodate was identified by him as *C. adamsi*, *G. R. Gray*. See remark by Mr. H. Seebohm, 'Ibis, 1879, p. 22.

19. Colymbus septentrionalis, L.

Red-throated Diver. Jap. 'Abi.'

Occasionally obtained in Toukiyau Bay. Tolerably abundant in

Yezo. Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 208: Swinhoe, 'Ibis,' 1874, p. 163.)

20. CYGNUS MUSICUS, Bechst.

Hooper. Jap. 'Oho-haku-teu.'

The common Swan of Yezo. Specimens in the Hakodate, Toukiyau and Satsuporo Museums. (Swinhoe, 'Ibis,' 1875, p. 456.)

Occasionally obtained about Toukiyau in winter. Three seen in the Moat there, among other wild fowl in January, 1876.

21. CYGNUS BEWICKI, Yarr.

Bewicks Swan. Jap. 'Haku-teu.'

A specimen in the Kiyou-iku Haku-butsu-kuawñ seems to agree the figure and description of this species.

22. ANSER SEGITUM, Gm.

Bean Goose. Jap. 'Hishikuhi.'

This goose seems pretty generally distributed throughout Japan. Specimens in all the museums. Those in the Hakodate museum were collected in Yezo. There seem to be two forms,—a large and small, possibly separable. (Swinhoe, 'Ibis,' 1875, p. 456.)

23. ANSER BRACHYRHYNCHUS, T.

Pink-footed Goose. Jap. 'Ma-gañ.'

Common in winter in Toukiyau Bay. Specimens in the Hakodate Museum collected in Yezo. (Swinhoe, 'Ibis,' 1875, p. 456: Seebohm, 'Ibis,' 1879.)

24. ANSER ALBIFRONS, Gm.

White-fronted Goose. Jap. 'Karigane.'

Common in Toukiyau Bay; seen as early as the beginning of October. Passes Hakodate in spring and autumn. Specimens in the Toukiyau and Hakodate Museums. (Swinhoe, 'Ibis,' 1875, p. 456, et 1877, p. 146.)

25. ANSER ERYTHROPUS, Linn.

Jap. 'Ko-karigane.'

A miniature of the preceding species. Obtained in Toukiyau and Yezo. Specimens in the Hakodate Museum. (Seebohm, 'Ibis,' 1879, p. 22.)

26. Anser cygnoides, L.

Jap. 'Sakatsura-hishikuhi.'

Figured in the 'Fauna Japonica.' Specimens at the Haku-butsu-kuwañ and Kai-taku-shi Museum in Toukiyau. As in *A. segitum* there are two sizes of this goose which may prove distinct.

27. Anser hyperboreus, Pall.

Snow Goose. Jap. 'Haku-gañ.'

In large flocks in winter about Susaki, Toukiyau Bay. No specimens yet sent to Europe for identification. There are said to be smaller birds mixed with the flocks, which may prove to be *A. albatus*, *Cassin*. Specimens in the Toukiyau Museums.

28. Bernicla leucoparia, Brandt.

Jap. 'Shi-zhifu-kara-gañ.'

A small species of the Canada goose form inhabiting the Pacific coast of North America, and passing from the Arctic *viâ* Kamschatka to Japan, where it does not seem to be abundant.

Specimens obtained in the neighbourhood of Hakodate are in the Hakodate Museum. Also in the Toukiyau Museums. Obtained at Yokohama.

29. Bernicla torquata, Jenyns.

Brent Goose. Jap. 'Koku-gañ.'

Obtained in the Toukiyau Bay. The winter sea-goose of Hakodate. Specimens in the Hakodate Museum.

30. Anas boschas, L.

Mallard. Jap. 'Ma-gamo.'

As in Europe, the common "Wild Duck" in Japan. As far as we know it does not breed south of Yezo. (Swinhoe, 'Ibis,' 1877, p. 146.)

31. Anas zonorhyncha, Swinh.

Dusky Mallard. Jap. 'Kari-gamo.'

Of the same form and size as the Mallard, and doubtless often mistaken by sportsmen to be female or young Mallard. Can always be distinguished by a yellow band across the bill. Seems to be very generally distributed. Specimens from both islands in the Hakodate

Museum. Specimens in the Toukiyau Museums. A nest of eggs was found in April on the lake at Uheno Park, Toukiyau. (Swinhoe, 'Ibis,' 1874, p. 164).

32. Aix galericulata, L.

Mandarin Duck. Jap. 'Oshi-dori.'

Breeds in Yezo, and on the Main Island. Is said formerly to have built in the trees in Uheno Park, Toukiyau. Common on narrow, deep streams.

Dives and hides in the overhanging bamboo thickets on the approach of danger. Obtained at Nitsu-kuwau. Specimens in the Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 457.)

33. Casarca rutila, Pall.

Ruddy Shieldrake.

This bird is figured in native books, and is given in the 'Fauna Japonica' list. We have been shown the wing-feathers, but have not succeeded in obtaining a complete specimen.

34. Tadorna cornuta, Gmd.

Common Shieldrake. Jap. 'Tsukushi-gamo.'

A full plumaged male presented by Mr. F. Ringer, who collected it at Nagasaki, is in the Hakodate Museum.

35. Mareca penelope, L.

Widgeon. Jap. 'Hidori.'

Swarms during winter in the Toukiyau Moats and Bay. Common in Yezo in spring and autumn. Specimens in the Toukiyau and Hakodate Museums. (Swinhoe, 'Ibis,' 1875, p. 457.)

36. Dafila acuta, L.

Pintail. Jap. 'Wo-naga-gamo.'

A very common duck in winter in Toukiyau; passes Hakodate in spring and autumn. (Whitely, 'Ibis,' 1867, p. 207: Swinhoe, 'Ibis,' 1877, p. 147.)

Specimens in the Hakodate and Toukiyau Museums.

37. Querquedula crecca, L.

Teal. Jap. 'Ko-gamo.'

Very plentiful about Toukiyau in winter. Some remain in Yezo during the same season, but more go south.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 207: Swinhoe, 'Ibis,' 1877, p. 147.)

38. QUERQUEDULA CIRCIA, L.

Garganey Teal. Jap. 'Shima-hazhi.'

One specimen obtained in the Toukiyau market by Mr. Ota. Now in the Kiyou-iku Haku-butsu-kuwañ Museum. Two specimens by Mr. N. Fukushi at Satsuporo, Yezo, now in the Hakodate Museum.

39. QUERQUEDULA FALCATA, Pall.

Falcated Teal. Jap. 'Yoshi-gamo.'

Specimens from Nagasaki, Awomori and Yezo, in the Hakodate Museum, also in the Toukiyau Museums. Common in Toukiyau Bay. (Swinhoe, 'Ibis,' 1874, p. 164.)

40. QUERQUEDULA FORMOSA, Georgi.

Spectacled Teal. Jap. 'Azhi.'

Common in winter about Toukiyau. Ranges as far as the north extremity of the Main Island, if not Yezo. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 147.)

41. SPATULA CLYPEATA, L.

Shoveller. Jap. 'Hashibiro-gamo.'

Generally distributed. Migrates with the other ducks. Yezo specimens in the Hakodate Museum, also inthe Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 457.)

42. CHAULELASMUS STREPERUS, L.

Gadwall. Jap. 'Okayoshi.'

Not uncommon among the wild fowl brought to market at Yokohama. Another obtained in the same way is in the Hakodate Museum. Resembles *Q. falcata* in summer plumage. An exceptionally large specimen shot by Mr. Whitfield north of Toukiyau, January, 1880. Specimens in the Toukiyau Musemus.

43. FULIGULA MARILA, L.

Scaup Duck. Jap. 'Nakihashiro-gamo.'

Common in winter about Toukiyau. Remains at Hakodate in spring about the latest duck. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 457.)

44. Fuligula marıloides, Vigors.

Lesser Scaup.

Specimen sent from Yezo to the late Mr. Consul Swinhoe was identified by him as this species.

45. Fuligula cristata, L.

Tufted Duck. Jap. 'Kiñkurohajiro-gamo.'

A common duck during winter in Toukiyau. Migrates to Yezo. Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 22.)

46. Fuligula ferina, L.

Pochard. Jap. 'Hoshihajiro.'

One specimen obtained at Hakodate is in the Museum there. Common in the early months of the year about Yokohama.

47. Nyroca ferruginea, Gm.

Jap. 'Akahajiro.'

A few specimens obtained in Toukiyau and Yokohama, and Yezo specimen in the Hakodate Museum. (Seebohm, 'Ibis,' 1879, p. 22.)

Specimens in the Toukiyau Museums.

48. Clangula histrionica, L.

Harlequin Duck. Jap. 'Shinori-gamo.'

More common in Yezo than on the Main Island. Specimens in the Hakodate and Toukiyau Museums.

49. Clangula glaucion, L.

Golden Eye. Jap. 'Hojiro-gamo.'

Probably the most numerous kind of sea-duck in Yezo. Generally distributed about the coast. Frequents the rivers and bays south in the winter. Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 208.)

50. Harelda glacialis, L.

Long-tailed Duck.

Common on the coasts of Yezo; not yet found south. Specimens in the Hakodate Museum. (Whitely, 'Ibis,' 1867, p. 208: Swinhoe, 'Ibis,' 1877, p. 147.)

51. SOMATERIA DISPAR, Sparrin.

Steller's Western Duck.

Shot by Mr. H. J. Snow during winter on Eturup, one of the Kuril Islands. Specimen in the Hakodate Museum from Kamschatka.

52. ŒDEMIA FUSCA, L.

Velvet Scoter. Jap. 'Kuro-tori.'

Common in Yezo; also obtained at Sendai, and occasionally about Yokohama. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 457.)

53. ŒDEMIA AMERICANA, Rich.

American Scoter. Jap. 'Kuro-gamo.'

Obtained in Yezo, and also in the Yokohama game-market. Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 23.)

54. MERGULUS ALBELLUS, L.

Smew. Jap. 'Miko-aisa.'

Specimens obtained at Yokohama and in Yezo; the latter in the Hakodate Museum. (Seebohm, 'Ibis,' 1879, p. 23.)

Specimens in the Toukiyau Museums.

55. MERGUS CASTOR, L.

Goosander. Jap. 'Kawa-aisa.'

Near Toukiyau, and in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 456.)

56. MERGUS SERRATOR, L.

Red-breasted Mesganser. Jap. 'Umi-aisa.'

Specimens obtained in Yezo, in the Hakodate Museum. (Swinhoe, 'Ibis,' 1875, p. 459.)

57. PHALACRACORAX CARBO, L.

Cormorant. Jap. 'U.'

Great numbers roost on the trees at Babasaka, in the centre of Toukiyau. Generally found throughout Japan. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' p. 164.)

58. PHALACRACORAX PELAGICUS, Pall.

Resplendent Shag. Jap. 'U-garasu.'

This bird seems to keep always on the sea, not found inland. Great numbers roost at night on Treaty Point, Yokohama, during the winter, but do not stop during the summer. Common on the coast of Yezo. Specimens in the Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 166, et 1877, p. 147.)

59. PHALACRACORAX BICRISTATUS, Pall.

Double Crested Cormorant.

Figured in the 'Fauna Japonica.'

60. SULA LEUCOGASTRA, Bodd.

Gannet.

Given in the list of the 'Fauna Japonica' as *S. fusca*.

61. STERNA FULIGINOSA, Lalto.

Sooty Tern.

Figured in the 'Fauna Japonica.'

62. STERNA MINUTA, L.

Lesser Tern. Jap. 'Ajisashi.'

An example shot in Toukiyau Bay by Mr. Dare, probably this species. To be seen fishing on any of the rivers in summer about Yokohama, where it breeds. Specimens in the Toukiyau Museums.

63. STERNA LONGIPENNIS, Nordm.

Specimens in the Hakodate Museum from Yezo and Kamschatka, collected by Mr. N. Fukushi. One killed by Mr. H. J. Snow at Eturup (Kuril Islands); sent to Mr. H. Seebohm for identification. (Seebohm, 'Ibis,' 1879, p. 23.)

Another obtained at Yokohama in May.

64. STERNA ————?

A wholly white Tern in the collection of the Yamashita Haku-butsu-kuwañ. May be *Gygis candida* (Gmel.). (See Seebohm, 'Ibis,' 1879, p. 23.)

65. LARUS CRASSIROSTRIS, Vieill.

Black-tailed Gull. Jap. 'Umeneko.'

The most abundant gull throughout Japan. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 332: Swinhoe, 'Ibis,' 1874, p. 164.)

66. LARUS GLAUCUS, Fobr.

Glaucous Gull or Burgomaster. Jap. 'Shiro-kamome.'

Specimens obtained at Hakodate, in the Museum, identified by Mr. Howard Saunders. (See Swinhoe, 'Ibis,' 1874, p. 165: Seebohm, 'Ibis,' 1879, p. 23.)

67. LARUS GLAUCESCENS, Licht.

Large Grey-winged Gull. Jap. 'O-washi-kamome.'

Specimens obtained at Hakodate, in the Museum, identified by Mr. Howard Saunders. (Swinhoe, 'Ibis,' 1874, p. 165: Seebohm, 'Ibis,' 1879, p. 23.)

68. LARUS CACHINNANS, Pall.

Mediterranean Herring-Gull.

Several specimens collected at Hakodate by Mr. H. Whitely. Were placed under the name of *L. occidentalis, Aud.* ('Ibis,' 1867, p. 210.) Mr. Howard Saunders has decided that they should have been named as above. (Seebohm, 'Ibis,' 1879, p. 24.)

Common about Yokohama in spring.

69. LARUS CANUS, Linn.

Common Gull.

Specimens in the Hakodate Museum, collected in Yezo and Kamschatka. Identified by Mr. Howard Saunders as a large race of this species, probably *L. niveus* of Pallas. (Swinhoe, 'Ibis,' 1874, p. 165: Seebohm, 'Ibis,' 1879, p. 24.)

70. LARUS MARINUS, L.

Great Black-backed Gull. Jap. 'O-seguro-kamome.'

Specimen identified by Mr. Howard Saunders. (Swinhoe, 'Ibis,' 1874, p. 165: Seebohm, 'Ibis,' 1879, p. 24.)

Specimen in the Hakodate Museum from that locality.

71. LARUS LEUCOPTERUS, Faber.

Iceland Gull.

On the authority of a specimen from Yezo, identified by Mr. Howard Saunders. (P.Z.S., 1878, p. 166.)

72. LARUS DELAWARENSIS, Ord.

Ring-billed Gull.

A specimen collected by Mr. H. Whitely, at Hakodate, is in the collection of Mr. Howard Saunders. (Seebohm, 'Ibis,' 1879, p. 24.)

73. LARUS RIDIBUNDUS, L.

Black-headed Gull. Jap. 'Yuri-kamom.'

Specimens obtained from various localities. Leaves Yezo in winter. Assumes black head in April.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 165 165: Seebohm, 'Ibis,' 1879, p. 24.)

74. RISSA TRIDACTYLA, L.

Kittiwake Gull.

A specimen obtained at Nemoro, at the eastern extremity of Yezo, is in the Hakodate Museum. Another, collected at Toukiyau, is referred to this species or *R. septentrionalis* of Lawrence, the North Pacific Kittiwake, pending proper identification.

75. STERCORARIUS, sp. inc.

Skua.

Specimens in Hakodate Museum; collected at Kuril Islands by Mr. H. J. Snow.

76. DIOMEDEA DEROGATA, Swinhoe.

Flesh-billed Black Albatross. Jap. 'Kuro-ahodori.'

Common in Yezo at midsummer. (Swinhoe, 'Ibis,' 1874, p. 165.)

Specimens in the Toukiyau Museum.

77. DIOMEDEA BRACHYURA, Temm.

Black and white Albatross. Jap. 'Ahodori.'

More abundant in southern than in northern Japan. The young resembling *D. Derogata*. Is figured in the 'Fauna Japonica.' Specimens in the Hakodate Museum from Yezo, and in the Toukiyau Museums.

78. FULMARUS TENIUROSTRIS, Aud.

Slender-billed Fulmar.

Two specimens in the Hakodate Museum in immature plumage. Obtained in the Kuril Islands by Mr. H. J. Snow.

79. FULMARUS PACIFICUS, Lawrence=*P. pacifica*, Aud.

Pacific Fulmar.

Specimens obtained from the Kuril Islands in the Hakodate Museum. (Seebohm, 'Ibis,' 1879, p. 25.)

80. PROCELLARIA LEUCORRHOA, Vieill.

Storm Petrel. Jap. 'Umi-tsubame.'

Specimens from the Kuril Islands in the Hakodate Museum. One sent to Dr. P. L. Sclater in 1878. ('Ibis,' 1878, p. 218.)

81. PROCELLARIA FURCATA, Gould.

Fork-tailed Petrel.

A specimen in the Hakodate Museum from the Kuril Islands is referred to this species.

82. PUFFINUS LEUCOMELAS, T. & S.

Shearwater.

Figured in the 'Fauna Japonica' under this name.

83. PUFFINUS TENUIROSTRIS, T. & S.

Shearwater. Jap. 'Ume-kamome.'

A specimen obtained after a typhoon at Yoshino, Yamato, forty miles distant from the nearest sea; is now in the Kiyou-iku Haku-butsu-kuwañ collection. Agrees with the figure in the 'Fauna Japonica.' Another picked up, very much decayed, on the beach at Kamakura.

84. CHARADRIUS FULVUS, Gm.

Eastern Golden Plover. Jap. 'Muneguro-shigi.'

Common throughout Japan. Specimens in the Hakodate and Toukiyau Museums.

This bird has received the name of *orientalis*, and has also been confounded with *C. virginicus*, but the latter is a larger species not yet found in Asia. (Swinhoe, 'Ibis,' 1874, p. 162, et 1875, p. 452: Whitely, 'Ibis,' 1867, p. 204: Seebohm, 'Ibis,' p. 25.)

85. ÆGIALITIS CANTIANA, Lath.

Kentish Plover. Jap. 'Shiro-chidori.'

Specimens obtained in the Main Island and Yezo in the Hakodate Museum; also in the Toukiyau Museums. (Blakiston, 'Ibis', 1862, p. 330: Swinhoe, 'Ibis,' 1875, p. 452.)

Common in winter about Yokohama.

86. Ægialitis placida, Gray.

Harting's Sand-Plover. Jap. 'Ikaru-chidori.'

Specimens collected in Yezo; in the Hakodate Museum; also in the Toukiyau Museums. Common in winter about Yokohama. (Swinhoe, 'Ibis,' 1874, p. 162.)

87. Ægialitis dubia, Scop.=*Curonicas*, Gm.

Found breeding on the shores of Yamanaka Lake, Fuji-sañ; obtained at Hakodate and Yokohama. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 452: Swinhoe, 'Ibis,' 1869, p. 25.)

88. Ægialitis mongolica, Pall.=*Ruficapilla*, Temm.

Specimens obtained both from neighbourhood of Yokohama and Hakodate, in the Hakodate Museum; also in the Toukiyau Museums. *Æ. geoffroyi*, which is distinct from this species, is said to be found in Japan. (Seebohm, 'Ibis,' 1879, p. 25.)

89. Vanellus cristatus, Mey.

Lapwing. Jap. 'Tagere.'

Specimens obtained at Toukiyau and Niigata and at Hakodate in Yezo; it does not seem to be a common bird in Yezo, but is very abundant about Kawasaki. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1876, p. 334.)

90. Lobivanellus inornatus, T. & S.

Jap. 'Kire.'

This bird has not been found as far north as Yezo. Specimen in the Hakodate Museum is from Toukiyau, also in the Toukiyau Museums. Breeds about Susaki, Toukiyau. The male is very vigilant, mounting high up in the air and with loud laughing cries driving off any kite or hawk directly one appears hovering near where the hen is sitting. The eggs are laid among the grass growing on the ridges which intersect the paddy-fields; they are four in number, and resemble the lapwing, but are not so pointed. Breeds in April.

91. Squatarola helvetica, L.

Gray Plover.

Common in spring and autumn in Yezo, but not so abundant as

the Golden Plover. Specimens in the Hakodate Museum. Common in spring and autumn at Yokohama. (Swinhoe, 'Ibis,' 1875, p. 452.)

92. STREPSILAS INTERPRES, L.

Turnstone. Jap. 'Kiyo-jiyau shigi.'

Seems to be more common on the Main Island than in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 26.)

93. HÆMATOPUS OSCULANS, Swinhoe.

Eastern Oyster-catcher. Jap. 'Miyako shigi.'

Specimens obtained about Yokohama, and in Yezo; in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 26.)

94. TOTANUS INCANUS, Gm.

Grey Sandpiper.

This is one of the most common Sandpipers in Japan. Specimens from various localities on the Main Island and Yezo in the Hakodate Museum.

It is figured in the 'Fauna Japonica' as *T. pulverulentus*, and included in Mr. H. Whitely's list ('Ibis,' 1867, p. 205) under that name.

Specimens in spring and autumn plumage, which differ considerably, were identified by the late Mr. R. Swinhoe. (Swinhoe, 'Ibis,' 1874, p. 163, et 1875, p. 453.)

95. TOTANUS GLOTTIS, L.

Greenshank. Jap. 'Awo-ashi chidori.'

Common in Yezo, and obtained about Yokohama. Specimens in the Hakodate Museum.

This is probably the *T. brevipes* mentioned by M. Cassin. (Proc. Acad. Phil. 1858.)

96. TOTANUS CALIDRIS, Bechst.

Common Redshank.

Specimens—probably this species—sent to Mr. H. Seebohm for identification; appears to be not uncommon in the autumn about Toukiyau.

97. TOTANUS FUSCUS, L.

Spotted Redshank.

Several specimens collected in Yezo, in the Hakodate Museum. Also obtained near Toukiyau. Specimens in the Museums there. (Swinhoe, 'Ibis,' 1875, p. 453.)

98. TOTANUS OCHROPUS, L.

Green Sandpiper.

Examples from Toukiyau, Nagasaki, and several localities in Yezo compared. Specimens in the Hakodate Museum. (Blakiston, 'Ibis,' 1862, p. 330: Swinhoe, 'Ibis,' 1875, p. 453.)

99. TOTANUS GLAREOLA, L.

Wood Sandpiper.

Specimens from Yezo and the Kuril Islands in the Hakodate Museum. (Whitely, 'Ibis,' 1867, p. 205: Swinhoe, 'Ibis,' 1874, p. 169.)

100. TRINGOIDES HYPOLEUCUS, L.

Common on rivers, both on the Main Island and Yezo. Specimens in the Hakodate Museum. Differences in plumage attributed to season only. (Swinhoe, 'Ibis,' 1874, p. 163, 1875, p. 453.)

101. LIMOSA UROPIGIALIS, Gould.

Godwit. Jap. 'Kojiyaku chidori.'

Specimens from Toukiyau and Yezo in the Hakodate Museum. This species is given in the 'Fauna Japonica' as *L. rufa*, the Bar-tailed Godwit of Europe, and is probably that noted by Cassin from Japan, Proc. Acad. Phil. 1858. (Swinhoe, 'Ibis,' 1875, p. 453.)

102. LIMOSA BREVIPES, G. R. Gray.

Godwit. Jap. 'Sorihashi chidori.'

Specimens collected in Yezo in the Hakodate Museum. Specimen in the Yamashita Haku-butsu-kuwañ seems very dark; may be another species. (Swinhoe, 'Ibis,' 1875, p. 453.)

103. RECURVIROSTRA AVOCETTA, L.

Avocet.

This is given in the 'Fauna Japonica' under the name of *Limosa recurvirostra*. Mr. G. Hamilton states that he saw such a bird some years ago at Susaki, Toukiyau.

104. TRINGA CRASSIROSTRIS, T. & S.

Eastern Knot.

A single specimen of this bird, which is figured in the 'Fauna Japonica,' was obtained at Hakodate in 1861. (Blakiston, 'Ibis,' 1862, p. 330.) It is probably the species included by Cassin, as *T. magna*. Proc. Acad. Phil. 1858. Specimens obtained in Yezo in the Hakodate Museum. (Seebohm, 'Ibis,' 1879, p. 26.)

Common about Yokohama in the autumn.

105. TRINGA CINCLUS, Linn.

A number of specimens in the Hakodate Museum, having the usual variability of plumage and length of bill. Toukiyau and Yezo examples compared. (Blakiston, 'Ibis,' 1862, p. 330: Swinhoe, 'Ibis,' 1875, p. 455.)

Specimens in the Toukiyau Museums.

[illegible]RINGA ACUMINATA, Horsf.

Stint.

pecimens from Yezo in the Hakodate Museum; often obtained Yokohama. (Swinhoe, 'Ibis,' 1875, p. 455.)

TRINGA ALBESCENS, Gould.

Stint.

Obtained in Yezo, and at Yokohama. Specimens in the Hakodate luseum. (Blakiston, 'Ibis,' 1862, p. 330, as *T. temmincki:* Whitely, Ibis,' 1867, p. 206, as *T. minuta:* Swinhoe, 'Ibis,' 1875, p. 455.)

INGA RUFICOLLIS, Pallus.

Stint.

pecimens collected in Yezo in the Hakodate Museum. Duplicates identified by the late Mr. R. Swinhoe as *T. damacensis, Horsf.* is,' 1875, p. 455.) Mr. H. Seebohm considers this bird should nd as *ruficollis*. ('Ibis,' 1879, p. 26.)

9. TRINGA MACULATA, Vieill. (?)

Stint.

The existence of this species is doubtful. There are two specimens which may be distinct in the Hakodate Museum. (Swinhoe, 'Ibis,' 1875, p. 455.)

110. CALIDRIS ARENARIA, L.

Sanderling.

Specimens obtained on the south-east coast of Yezo in the Hakodate Museum. (Swinhoe, 'Ibis,' 1875, p. 454.)

111. MACHETES PUGNAX, L.

Ruff.

A specimen obtained in Yezo, now in the Hakodate Museum, is referred to this species.

112. LOBIPES HYPERBOREUS, L.

Red-necked Phalarope.

Specimens in both spring and autumn plumage, collected in Yezo, are in the Hakodate Museum. (Swinhoe, 'Ibis,' 1875, p. 455.)

113. LOBIPES WILSONII, Lob. (?)

Specimens collected by Mr. H. J. Snow on the Kuril Islands, where he also found *L. hyperboreus*, in the Hakodate Museum. About the same form and size as the American species.

114. EURINORHYNCHUS PYGMÆUS, L.

Spoon-billed Sandpiper. Jap. 'Hira-shigi.'

Two specimens obtained in Yezo of this peculiar bird are in the Hakodate Museum. (Swinhoe, 'Ibis,' 1875, p. 455.) One obtained in Yokohama in October and another by Mr. Ota at Toukiyau.

115. SCOLOPAX RUSTICOLA, L.

Woodcock. Jap. 'Hodo-shigi.'

The woodcock of Japan in not distinguishable from that of Europe. It varies much in shade of plumage, and sometimes is found entirely of a creamy white. It seems to be generally distributed, but is only found in Yezo during the warm season. Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 206: Swinhoe, 'Ibis,' 1877, p. 145: Seebohm, 'Ibis,' 1879, p. 26.)

116. GALLINAGO AUSTRALIS, Lath.

Great Australian Snipe. Jap. 'Yama-shigi.'

This bird was obtained on Fuji-sañ in June and July. It is common in Yezo, where it was first discovered to be a Japanese bird in 1861. (Blakiston, 'Ibis,' 1863, p. 100.) Specimens in the Hakodate Museum. (Swinhoe, 'Ibis,' 1863, p. 444, et 1874, p. 163: Seebohm 'Ibis,' 1879, p. 26.)

Breeds at the foot of Fuji-sañ.

117. GALLINAGO SCOLOPACINA, Bp.

Common Snipe. Jap. 'Ji-shigi.'

Common throughout Japan. Specimens from several localities in the Hakodate and Toukiyau Museums. The plumage is darker in autumn than in spring, owing to which the late Mr. R. Swinhoe considered that some of the specimens sent him were the American species, *G. wilsonii*, but these have subsequently been carefully compared by Mr. H. Seebohm with European examples, who pronounces all to be *G. scolopacina*. (Swinhoe, 'Ibis,' 1874, p. 163, et 1875, p. 454: Seebohm, 'Ibis,' 1879, p. 27.)

118. GALLINAGO SOLITARIA, Hodgs.

Common at Yokohama; often found on up-lands. Found also at Nagasaki and a few in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 146.)

Mr. H. Whitely included *G. media* in his list ('Ibis,' 1867, p. 206), which probably referred to this species.

119. GALLINAGO GALLINULA, L.

Jack Snipe.

This is evidently a rare bird in Japan. Mr. Whitely obtained only one at Hakodate ('Ibis,' 1867, p. 206), and there is only one in the Hakodate Museum, which has been carefully compared with a European example. Another shot by Mr. Olmsted near Yokohama in October, 1879.

N. B.—The Painted Snipe will be found in this order of classification between the Cranes and Rails.

120. PSEUDOSCOLOPAX SEMIPALMATUS, Jordon.

One specimen obtained in Yezo, in the Hakodate Museum, is referred to this species.

121. NUMENIUS MAJOR, T. & S.

Curlew. Jap. 'Oho-shiyaku shigi.'

Hakodate specimens in the Museum there agree with the 'Fauna Japonica' plate. (Whitely, 'Ibis,' 1867, p. 205: Swinhoe, 'Ibis,' 1876, p. 334.)

122. NUMENIUS MINOR, T. & S.

Curlew. Jap. 'Shiyaku shigi.'

This diminutive curlew is figured in the 'Fauna Japonica.'

123. NUMENIUS AUSTRALIS, Gould.

Curlew.

Yezo specimens in the Hakodate Museum. Identified by the late Mr. R. Swinhoe. (Swinhoe, 'Ibis,' 1876, p. 334, et 1863, p. 445.)

124. NUMENIUS PHŒPUS. Lath.

Whimbrel. Jap. 'Ko-shiyaku-shigi.'

Obtained both near Toukiyau and in Yezo. Specimens in the Hakodate and Toukiyau Museums. This is probably the *N. tahitensis* of Perry's expedition. (Swinhoe, 'Ibis,' 1877, p. 146.)

125. IBIS NIPPON, T. & S.

Japan Ibis. Jap. 'Toki.'

Common on the flats around the head of Toukiyau Bay. Breeds in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 455.)

126. IBIS PROPINQUA, Swinh.

Ibis. Jap. 'Kuro-toki.'

Not uncommon about Ohomori, Toukiyau. One specimen from that locality in the Hakodate Museum. Not observed in Yezo, and no specimen yet sent to Europe for identification. Specimens in the Toukiyau Museums.

127. PLATALEA MAJOR, T. & S.

Spoonbill. Jap. 'Hira-sagi.'

Not a common bird. Mr. H. Whitely obtained a specimen at Hakodate ('Ibis,' 1867, p. 204), and another procured there is in the Hakodate Museum.

P. minor of the 'Fauna Japonica' is now considered to be only a small example of the above. (Seebohm, 'Ibis,' 1879, p. 27.)

Specimens in the Toukiyau Museums.

128. NYCTICORAX GRISEUS, Linn.

Night Heron. Jap. 'Seguro-gowi.'

Generally distributed in South Japan. Eggs and young obtained from a heronry below Kauchi Castle, Tosa, in July. Nest placed on

highest branches of tall trees. Eggs a white bluish green color. Specimens in the Hakodate Museum from Toukiyau. Also in the Museums there. (Swinhoe, 'Ibis,' 1877, p. 146.)

129. GOISACHIUS MELANOLOPHUS, Raffles.

Jap. 'Miso-gowi.'

This is probably the *Ardea goisagi* of the 'Fauna Japonica,' which has been confounded with the young of the common Night Heron. Several specimens obtained about Toukiyau. No examples have been sent to Europe for identification.

130. BOTAURUS STELLARIS, L.

Bittern. Jap. 'Sañkano-gowi.'

Observed about Toukiyau. Specimens obtained in Yezo in the Hakodate Museum; also in the Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 455.)

131. ARDETTA SINENSIS, Gm.

Chinese Little Bittern.

Specimens obtained in Yezo and at Nagasaki in the Hakodate Museum; also in the Toukiyau Museums. The *Ardea scapularis* of the 'Fauna Japonica' is possibly referrible to this species. (Seebohm, 'Ibis,' 1879, p. 27.)

132. ARDETTA EURHYTHMA, Swinh.

Von Schrenck's Little Bittern. Jap. 'Yoshi-gowi.'

Specimens obtained in Yezo in the Hakodate Museum. (Swinhoe, 'Ibis,' 1876, p. 335.)

133. ARDEA CINEREA, L.

Common Heron. Jap. 'Awo-sagi.'

Occasionally seen about Toukiyau. An example from Nagasaki compared. Specimens obtained in Yezo and at Awomori, in the Hakodate Museum; also in the Toukiyau Museums. (Swinhoe, 'Ibis,' 1876, p. 335.)

134. HERODIAS MODESTA, Gray.

Great Egret. Jap. 'Oho-sagi.'

This bird is generally considered by ornithologists as only a small race of *H. alba* of Europe. (Seebohm, 'Ibis,' 1879, p. 27.) It arrives

at Toukiyau in April, and is tolerably abundant. Specimens obtained at Hakodate, in the Museum there; also in the Toukiyau Museums. (Swinhoe, 'Ibis,' 1876, p. 335.)

135. Herodias intermedia, Wagl.

Egret. Jap. 'Chiu-sagi.'

Specimens agree with *A. egrettoides* figured in the 'Fauna Japonica.' Bill bright orange, tipped with horn color in summer. Specimens from Toukiyau and Yezo in the Hakodate Museum; also in the Toukiyau Museums.

136. Herodias garzetta, Linn.

Little Egret. Jap. 'Shira-sagi.'

A very common bird in South Japan. Specimens sent to Mr. H. Seebohm for identification. (Seebohm, 'Ibis,' 1879, p. 27.) Nests in tall trees. Specimens in the Toukiyau Museums.

137. Herodias russata, Wagl.

Buff-backed Egret. Jap. 'Ama-sagi.'

Seems to be rather abundant in the south. Several examples in the Museums in Toukiyau. No specimen yet sent for identification to Europe. Is included in the 'Fauna Japonica.'

Note.—Mr. Ota has two specimens of a black Egret, obtained on the Island of Tsushima, in the Sea of Japan.

138. Herodias,—?

One specimen procured in Hakodate, now in the museum there. Measurements are:—Length, 483 mm.; wing, 200 mm.; bill-ridge, 60 mm. Head and neck resemble the Night Heron; wings nearly white, back dark mouse colour, belly white.

139. Ciconia boyciana, Swinh.

Japan Stork. Jap. 'Ko-dzuru.'

This bird was described as new from Japan by the late Mr. R. Swinhoe. It is occasionally obtained about Toukiyau. There are living examples in the gardens of the Yamashita Haku-butsu-kuwañ and a skin in the Kiyou-iku Haku-butsu-kuwañ, and both Drs. Manning and Ahlburg preserved specimens.

140. Grus communis, Bechst.=*Cinerea, Bechst.*

Common Crane.

Figured in the 'Fauna Japonica' as *Grus cinerea longirostris;* is considered to be the same as the common Crane of Europe.

141. GRUS LEUCOGERANUS, Pall.

White Crane.

Figured in the 'Fauna Japonica' in white plumage, with rust brown head, or all white, vermilion bill and legs. Is considered to be the White Crane of Europe.

142. GRUS LEUCAUCHEN, T.

Crane. Jap. 'Tañ-chiyau.'

This is the national Crane of Japan, so commonly given in native drawings, and much and deservedly admired. It was formerly only allowed to be hawked with great ceremony by nobles of the highest rank. Live examples may be seen at the Yamashita Haku-butsu-kuwañ. A specimen obtained near Satsuporo, Yezo, as late as January, is in the Hakodate Museum.

143. GRUS MONACHUS, T.

Crane. Jap. 'Nabe-dzuru.'

Not uncommon in the neighborhood of Toukiyau, from which locality is a specimen in the Hakodate Museum. Figured in the 'Fauna Japonica.'

144. GRUS ANTIGONE, Linn.

Crane. Jap. 'Mana-dzuru.'

This is the most abundant Crane, and is a choice game-bird with the Japanese. It is distinguished from the young of the 'Tañ-chiyau' by the long tertial plume feathers being white. There is a specimen in the Kai-taku-shi Museum at Toukiyau, said to have been procured in Yezo. From the description sent Mr. H. Seebohm of a specimen from Toukiyau in the Hakodate Museum, he considers it to be *G. antigone.* (Seebohm, 'Ibis,' 1879, p. 28.)

It is singular that this Crane is not included in the 'Fauna Japonica.'

145. RHYNCHŒA BENGALENSIS, L.

Painted Snipe. Jap. 'Tama-shigi.'

This Snipe is known to sportsmen in the south. It has been found breeding on Fuji-sañ. Example from Nagasaki has been compared. Specimen from Yokohama in the Hakodate Museum; also in the Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 146.)

146. RALLUS INDICUS, Blyth.

Indian Water-Rail. Jap. 'Kuhina.'

Generally distributed throughout Japan, including Yezo. Some breed about Yokohama. Specimens in the Toukiyau and Hakodate Museums. When the 'Fauna Japonica' was published it was not considered distinct from the European species *R. aquaticus*, and was included in Mr. H. Whiteley's list also under this name. (Swinhoe, 'Ibis,' 1874, p. 163.)

147. PORZANA ERYTHROTHORAX, T. & S.

Red-breasted Rail. Jap. 'Hi-kuhina.'

This Rail is likewise generally distributed. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 331: Swinhoe, 'Ibis,' 1874, p. 163.)

148. PORZANA PYGMEA, Naum.

Baillon's Crake. Jap. 'Hime-kuhina.'

A specimen obtained in Yezo, now in the Hakodate Museum, is referred to this European species. (Swinhoe, 'Ibis,' 1876, p. 335.)

149. PORZANA EXQUISITA, Swinh.

Button Crake. Jap. 'Shima-kuhina.'

Specimens collected in Yezo in the Hakodate Museum. The late Mr. R. Swinhoe, who described this bird, identified a specimen sent him. ('Ibis,' 1876, p. 335.) The species is figured in the 'Ibis' for 1875, Pt. III.

150. GALLINULA CHLOROPUS, L.

Moorhen. Jap. 'Bañ.'

Found both on the Main Island and Yezo. Specimens in the Hakodate Museum compared with European examples. Also in the Toukiyau Museums.

151. FULICA ATRA, L.

Coot. Jap. 'Oho-bañ.'

Common on the rivers north of Toukiyau. Specimen shot at Hakodate. Figured in the 'Fauna Japonica' as *F. atra japonica*. Specimens in the Toukiyau Museums.

152. OTIS TARDA, L.

Bustard. Jap. 'No-gañ.'

A bird supposed to be a great Bustard was brought into the Hiyaugo market quite fresh in December, 1876. It weighed 13½ pounds. It probably was of this species, which is found at Shanghai, Hankow, and Peking in winter. The Japanese are acquainted with the bird, and their ornithologists class it with the geese.

153. PHASIANUS VERSICOLOR, Vieill.

Green Pheasant. Jap. 'Kizhi.'

General throughout Kiushiu, and the southern islands, and as far as the northern extremity of the Main Island, but does not inhabit Yezo. It readily interbreeds with the Chinese *P. torquatus*, the hybrid being a remarkably fine bird, surpassing in beauty either of its parents. A female in male plumage was short by Mr. Dare in November, 1877. Many others have since been obtained. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 452.) Eggs, 5 to 6, dark olive, very much depressed.

154. PHASIANUS SŒMMERRINGI, T.

Copper Pheasant. Jap. 'Yamadori.'

The range of this species is similar to the last, not crossing the Strait of Tsugaru into Yezo. It frequents the plains and higher parts of the mountains indifferently. The Japanese have succeeded in obtaining in capitivity hybrids of this and the Green Pheasant. Of a pair which we have seen, the female is large, the male small but of very gorgeous plumage. In both, the tail of the Green Pheasant was present, and the hen, except for her size, had little to distinguish her from that species. Eggs 5 to 6, about 2 inches long, and resemble a pullet's egg, white, with a tinge of reddish.

155. TETRASTES BONASIA, L.

Hazel Grouse.

Jap. 'Yezo rai-teu: Jap. in Yezo, 'Yamadori.'

This wood-grouse—which is a European species—seems not to be found south of the Strait of Tsugaru separating Yezo from the Main Island.

156. LAGOPUS MUTUS, Gould.

Ptarmigan. Jap. 'Rai-teu.'

Some specimens of what appear to be this species in the collection of the Yamashita Haku-butsu-kuwañ are from Kaga; it is also said to be found in Oñtakesañ, on the borders of Shiñ-shiu. We are very anxious to obtain examples for proper comparison with the European bird, and would draw the attention of travellers in mountainous parts of Japan to the desirability of collecting. *Lagopus Mutus* was included in the 'Fauna Japonica' on the authority of a Japanese drawing.

157. COTURNIX JAPONICA, T. & S.

Red-throated Quail. Jap. 'Udzura.'

The quail is found more or less throughout Japan. It migrates northward in spring and southward in autumn, being abundant in Yezo during summer, where an occasional one is found during a mild winter. It has been observed breeding in the vicinity of Yamanaka Lake, Fuji-sañ, and about Toukiyau.

Ornithologists differ in opinion as to whether the Japan bird is distinct from the common quail, *Coturnix communis*, *Bonn.* The late Mr. R. Swinhoe considered the South China bird—without the red-throat—as *communis*, while that obtained by him at Chefoo, which he compared with Hakodate specimens, as *japonica*. (Swinhoe, 'Ibis,' 1875, p. 126 and 452.) Mr. F. Ringer collected specimens at Nagasaki in January and December, which appear to agree with the South China bird. Eggs 6, dirty white, patched with red-brown.

158. COLUMBU LIVIA, Temm. (?)

Rock Pigeon. Jap. 'Kahara-bato.'

A blue rock pigeon which breeds in the famous cave of Beñteñ-sama, on Yenoshima, may be of this or an allied species.

159. TURTUR GELASTES, Temm.

Eastern Turtle-Dove. Jap. 'Kizhi-bato.'

Remains all the year round on the plains, but is most abundant in winter. In Yezo only in summer. It breeds in the neighbourhood of

Yokohama even as late as November, Mr. J. Dare having found a nest with eggs on the 4th November; and Mr. G. H. Olmsted one containing fully fledged young on the 25th of the same month. (Whitely as *T. rupicola*, 'Ibis,' 1867, p. 204: Swinhoe, 'Ibis,' 1874, p. 162.)

160. TURTUR RISORIUS, L.

Barbary Dove. Jap. 'Shirako-bato.'

This species, which also inhabits North China, arrives about Toukiyau in April, and is often brought alive to market in large numbers. Light fawn-color varieties are found, which also occur in China. It breeds very late, young birds being obtained in November. Not yet procured in Yezo. (Swinhoe, 'Ibis,' 1876, p. 334 et 1877, p. 145.)

161. TRERON SIEBOLDI, Temm.

Siebold's Green Pigeon. Jap. 'Awo-bato.'

This bird seems peculiar to Japan; it is figured in the 'Fauna Japonica' and received its name as a tribute to its discoverer. The native hunters attract it within shot by imitating its long and varied 'coo.' In Yezo it is found only during summer, where its seems to prefer moderately high wooded bluffs adjoining the sea-shore, on the sands of which it frequently alights. It is a late breeding bird, two very young ones having been obtained in the Yokohama game-market in December. (Whitely, 'Ibis,' 1867, p. 204: Swinhoe, 'Ibis' 1875, p. 452.)

162. CARPOPHAGA IANTHINA, T. & S.

Crow Pigeon. Jap. 'Karasu-bato."

Abundant on Sarushima, Toukiyau Bay. The 'coo' is loud and is accompanied by the bird spreading its tail and clashing its pinion feathers together. Seen also in Shikoku.

163. CUCULUS CANORUS, L.

Cuckoo. Jap. 'Kako.'

This is supposed to be identical with the European Cuckoo, its habits and note being the same, but by some ornithologists it has been called *C. canorinus*, or the eastern form of the common Cuckoo. It is common about Fuji-sañ, and inhabits Yezo in summer. It was obtained at Hakodate by Commodore Perry's expedition. (Blakiston, 'Ibis,' 1862, p. 325: Whitely, 'Ibis,' 1867, p. 195: Swinhoe, 'Ibis,' 1875, p. 451.)

Specimens in the Hakodate and Toukiyau Museums from various localities.

164. Cuculus poliocephalus. Lath.

Cuckoo. Jap. 'Ho-to-to-gisu.'

This bird is a miniature of the preceding species, but is easily separable, as the traverse bars on the breast are much broader and the centre tail feather has seventeen alternate white spots, the first six being nearly opposed and the last pair being confluent. There is only a slight indication of spots on the tail of *C. canorus*. The male is very much smaller, measuring only 6¼ inches from the shoulder to the end of the pinion feathers against 8½ inches in *canorus*. The female is large and measures 7¾ inches from the shoulder. The chin and throat are grey, the breast and belly white, with broad traverse black bars; under tail coverts plain, with a rufous tinge. Immature birds spotted. The breast of the female is nearly black.

The note is very different from the Cuckoo, being the syllables 'ho-tuk-tuk' constantly repeated as it flies from bush to bush. It is very restless, seldom remaining in the same place for a minute.

This bird has the unfortunate reputation of possessing wonderful medicinal qualities, and is much hunted by the Japanese, a paste made of the burnt feathers being used as a salve for cuts and wounds, and the bird roasted whole or reduced to charcoal is eaten as a cure for consumption, eye-disease and other disorders. This bird is mentioned by Kämpfer. He calls it a night bird, but has fortunately given a drawing of it with the Japanese name in Chinese characters, and has thus enabled us to identify it.

Specimens in the Toukiyau Museums.

165. Cuculus [illegible]. Vigors.

Cuckoo. Jap. 'Tsu-tsu-dori.'

This bird exactly resembles [illegible], but is much larger, the wing measuring 8 inches from the shoulder. It has the same number of spots on the tail, but they are not so large. The bill is shorter and rather more curved. Its voice is very deep and can be heard for a long distance. It utters the syllables 'tsu-tsu' in succession and then a [illegible]. Specimens in the Museums.

166. Heirococcyx fugax. Horsf.

Cuckoo. Jap. 'Zhifu-ichi.'

The back of the male is slaty black, inclining to rufous. It has a white collar partially extending round the back of the neck, the tail is barred like a hawk, and the breast is white, with scattered brown feathers and with large longitudinal dark brown stripes. The female is darker on the back; the breast is a uniform reddish brown without stripes. It measures 8 inches from the shoulder to the end of the pinions.

It is not so common as the other Cuckoos, but fully makes up for it by extra vociferousness and activity. The male is fond of perching on the summit of a dead tree, spreading out its wings, elevating its tail and repeating the word 'zhifu-ichi' (Jap. for 11), at first slowly and then gradually faster and faster, until it cannot articulate any longer. It then tumbles off its perch and flits to another, and repeats the performance.

The Japanese are superstitious concerning this bird, as it is seldom seen near dwellings, and they believe that its visits to them portends an earthquake, as its cry is thought to resemble the word 'ji-shiñ' Jap. for 'earthquake'), and it goes by the name of the 'Ji-shiñ-teu,' *i.e.* 'Earthquake bird,' in some parts of the country.

Specimens in the Toukiyau Museums.

167. Picus major, L.

Spotted Woodpecker. Jap. 'Akagera.'

This is a European species. It inhabits the Main Island and Yezo, and has been found breeding on Fuji-sañ. This is the most abundant woodpecker. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 325: Whitely, 'Ibis,' 1867, p. 195: Swinhoe, 'Ibis,' 1875, p. 451.)

168. Picus minor, L.

Lesser Spotted Woodpecker.

Specimens obtained as Satsuporo, in Yezo, by Mr. Fukushi, in the Hakodate Museum, and one in the Kai-taku-shi Museum in Shiba, Toukiyau.

Of a skin sent to Mr. H. Seebohm, that gentleman remarked that it

was intermediate in color and form between *P. minor* of North Europe and Asia, and the small dingy race of West and Southern Europe. (Seebohm, 'Ibis,' 1879, p. 29.)

169. Picus leuconotus, Bechst.

White-rumped Woodpecker. Jap. 'Oho-akagera.'

This is also a European species, and inhabits Southern Japan as well as Yezo. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 325: Whitely as *uralensis*, 'Ibis,' 1867, p. 195: Swinhoe, 'Ibis,' 1875, p. 451.)

170. Picus kisuki, T. & S.

Woodpecker. Jap. 'Ko-gera.'

This species, which is supposed to be peculiar to Japan, was discovered by Siebold. It seems generally distributed throughout the country, including Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 325: Swinhoe, 'Ibis,' 1875, p. 451.)

171. Dryocopus martius, L.

Great Black Woodpecker. Jap. 'Kuma-gera.'

This is the European species. Is common in Yezo, but not yet found South. Specimens in the Hakodate Museum. (Blakiston 'Ibis,' 1862, p. 325: Swinhoe, 'Ibis,' 1875, p. 451.)

172. Gecinus canus, Gm.

Grey-headed Woodpecker. Jap. 'Yama-gera.'

Also a European species, which in Japan seems to be confined to Yezo, its place on the Main Island being taken by an essentially local species, *G. awokera*. Specimens in the Hakodate Museum. (Blakiston, 'Ibis,' 1862, p. 325: Whitely, 'Ibis,' 1867, 195: Swinhoe, 'Ibis,' 1875, p. 451.)

173. Gecinus awokera, T. & S.

Japan Green Woodpecker. Jap. 'Awo-gera.'

Described and figured in the 'Fauna Japonica.' May be distinguished by its scarlet moustache. So far only found on the Main Island, but probably inhabits the southern islands also.

Specimens from Yokohama in the Hakodate Museum; also in the Toukiyau Museum.

174. YUNX JAPONICA, Bp.

Eastern Wryneck. Jap. 'Arisu.'

Obtained in Yezo and at Nagasaki and Fuij-sañ. Specimens in the Hakodate and Toukiyau Museums.

This bird also inhabits China. (Swinhoe, 'Ibis,' 1874, p. 162.)

175. ALCEDO BENGALENSIS, Gm.

Kingfisher. Jap. 'Kaha-semi.'

In the East this kingfisher takes the place of that of Europe, and to ordinary observers might be taken for it. It varies slightly in size and color. Seems to be generally distributed throughout Japan, including Nagasaki and Yezo, in which latter locality it is only, however, a summer visitor. Eggs white and round; nest in a hole in a bank. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 325: Whitely, 'Ibis,' 1867, p. 196: Swinhoe, 'Ibis,' 1874, p. 152.)

176. CERYLE GUTTATA, Vigors.

Kingfisher. Jap. 'Kahañ-teu.'

This fine kingfisher was given in the 'Fauna Japonica' as *C. lugubris*. It frequents mountain streams, generally in pairs, both on the Main Island and Yezo; is occasionally found on the latter island in winter. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 449.)

177. HALCYON COROMANDA, Bodd.

Kingfisher. Jap. 'Kiyau-roro.'

The brilliant plumage of this bird is sure to attract attention. It is very vociferous in rainy weather, when its mournful cry '*kiyauroro*,' can be heard at a long distance. It is not uncommon on the Main Island, and is found also during the summer season in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 29.)

178. EURYSTOMUS ORIENTALIS, L. (?)

Jap. 'Buposo.'

Until the present year we were inclined to regard the Japanese Buposo as a mythical bird. It is well known by name, but reported to be very rarely seen, and we thought it might be the Pitta mentioned in the 'Fauna Japonica.' In May last the elder Mr. Ota procured a

specimen at Nagasaki, which is a *Eurystomus* and probably *orientalis*. The younger Mr. Ota, on seeing this specimen, remembers having found a feather of this same bird on Kau-ya-sañ in Kii some years ago.

179. UPUPA EPOPS, L. (?)

Hoopoe. Jap. 'Yatsugashira.'

This bird was included in the 'Fauna Japonica' on the authority of a Japanese drawing. M. Maximovitch noted having seen it at Hakodate in 1861. (Blakiston, 'Ibis,' 1862, p. 327.) A specimen obtained off the south-east coast of Yezo in the Hakodate Museum, is referred to this species pending careful comparison.

180. ZOSTEROPS JAPONICA, T. & S.

Jap. 'Mejiro.'

Common in winter on the plains in the Main Island associating with flocks of Tits. It is a favourite cage-bird with the natives. Obtained also at Nagasaki and in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 29.)

181. CERTHIA FAMILIARIS, L.

Creeper. Jap. 'Kibashiri.'

Specimen from Hakodate was pronounced by the late Mr. R. Swinhoe to be of the pale race of Amoorland; those obtained in Yamato seem smaller and darker. (Whitely, 'Ibis,' 1867, p. 196: Swinhoe, 'Ibis,' 1874, p. 152.) A specimen obtained at Nitsukuau agrees with the Yezo specimen.

Specimens in the Hakodate and Toukiyau Museums.

182. HIRUNDO GUTTURALIS, Scop.

Swallow. Jap. 'Tsubakuro.'

Ornithologists differ as to whether the common Swallow of China and Japan is sufficiently distinct from the European *H. rustica* to rank as a species or only sub-species. Its habits seem to be the same. It is generally distributed throughout the Japan Islands in summer. Nest always in a house, where a shelf is provided for its accommodation. Eggs 5, long, white, spotted with red. (Swinhoe, 'Ibis,' 1874, p. 151.)

Specimens in the Hakodate Museum, where is also one of *H.*

americana obtained by Mr. N. Fukushi at Petropaulski in Kamschatka, so it is quite possible the American bird may occasionally find its way to the Kuril Islands, if not to the Main Islands of the Japan group.

183. CECROPIS ERYTHROPYGIA, Sykes.

Indian Red-rumped Swallow. Jap. 'Yama-tsubakuro.'

Mr. H. Seebohm considers *japonica* and *arctivitta* as only synonyms for this species. ('Ibis,' 1879, p. 30.)

It is common about Toukiyau, where it builds a long, bottle-shaped nest under the eaves of buildings. Eggs six; white. Not yet found in Yezo. Specimen in the Hakodate Museum from Toukiyau; specimens also in the museums there.

This bird is common in Toukiyau, but has only just discovered Yokohama, although there have long been many suitable places for it to breed. The first nest was built late in 1878, and several this year (1879).

184. COTYLE RIPARIA, L.

Sand Martin. Jap. 'Tsuna-muguri-tsubame.'

So far, the only localities where this bird has been collected in Japan are Hakodate and at Satsuporo in Yezo, at which latter place Mr. N. Fukushi obtained a large series. It is probably to be found in many other places.

Specimens in the Hakodate Museum. (Seebohm, 'Ibis,' 1879, p. 30.)

185. CHELIDON BLAKISTONI, Swinhoe.

Black-chinned Martin. Jap. 'Iwa-maki-tsubame.'

This species was collected first at Hakodate, where it breeds in numbers under overhanging cliffs and caves. It was described and named by the late Mr. R. Swinhoe in the proceedings of the Zoological Society of London, 1862, p. 320, and in the 'Ibis,' 1863, p. 90. It was figured in the 'Ibis,' 1874, Pt. VII. It has been since found in other parts of Japan,—Fuji-sañ, Nitsukuau and on the summit of Ominisañjo-sañ in Yamato—being the common high mountain and cliff-martin of the country.

Specimens in Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 151.)

Eggs white; nest outwardly of mud, lined with grass and feathers, generally placed in a cranny of rock.

186. CYPSELUS PACIFICUS, Lath.

White-rumped Swift. Jap. 'Nairi-tsubame.'

Found both on the Main Island and Yezo. Specimens in the Hakodate Museum. Swinhoe, 'Ibis,' 1876, p. 331: Seebohm, 'Ibis,' 1879, p. 31.)

187. CHÆTURA CAUDACUTA, Lath.

Swift. Jap. 'Ama-tsubame.'

This large heavy-bodied species is found in the Nitsukuau mountains. It is common in Yezo in summer. Specimens in the Hakodate Museum. Swinhoe, 'Ibis,' 1875, p. 448.)

188. CAPRIMULGUS JOTAKA, T. & S.

Goatsucker. Jap. 'Yotaka.'

This distinct species was figured in the 'Fauna Japonica,' where it received a wrong native name owing to the Dutch pronunciation of the letter 'j.' It has been collected from various localities, including Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 195: Swinhoe, 'Ibis,' 1876, p. 331.)

Eggs 2, white, patched with grey, placed on the ground.

189. CORVUS JAPONENSIS, Bp.

Japan Crow. Jap. 'Hashibuto-garasu.'

This is the commonest bird of the Crow family in Japan. It is intermediate in size between the Carrion Crow and the Raven, and may always be distinguished by its very heavy bill. Wholly white and brown varieties are occasionally found.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 325: Whitely, 'Ibis,' 1867, p. 200.)

Eggs five, green, with darker patches; cannot be distinguished from the next species. Both build a large nest of twigs in trees.

190. CORVUS CORONE, L.

Carrion Crow. Jap. 'Hashiboso-garasu.'

This is the Carrion Crow of Europe. It seems to be generally distributed throughout Japan. Found breeding about Yokohama and in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 159.)

191. Corvus corax, L.

Raven. Jap. 'Watari-garasu.'

Specimens of this bird obtained at Eturup, the largest of the Kuril Islands, are in the Kai-taku-shi Museum at Shiba, Toukiyau, and in the Hakodate Museum, the latter shot by Mr. H. J. Snow. (Seebohm, 'Ibis,' 1879, p. 31.)

192. Corvus pastinator, Gould.

Eastern Rook. Jap. 'Miyama-garasu.'

As yet the European Rook has only been obtained about Toukiyau. Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 31.)

193. Corvus dauricus, Pall.

Jackdaw. Jap. 'Kokumaro-garasu.'

A live specimen was found in a bird shop at Asakusa, Toukiyau, agreeing with one of the figures in the 'Fauna Japonica.'

194. Corvus neglectus, Swinhoe.

Jackdaw.

This was figured in the 'Fauna Japonica' as the young of *dauricus*, but the late Mr. R. Swinhoe described it as a distinct species in the proceedings of the Zoological Society of London, 1863, p. 305.

195. Pica media, Blyth. (?)

Pied Magpie. Jap. 'Hizeñ-karasu.'

A Magpie was included in the 'Fauna Japonica' under the name of *P. varia-japonica*, from a Japanese drawing. The Japanese say that such a bird exists on the island of Kiushiu; if so it probably is this species, which inhabits China. There are specimens in the Hakodate Museum of a magpie collected by Mr. N. Fukushi in Kamschatka, the name of which remains undetermined.

196. Cyanopica cyanus, Pall.

Blue Magpie. Jap. 'Onaga-dori.'

This bird is not uncommon on the Main Island even as far as the northern extremity, but it has not been noticed in Yezo. Frequents marshy places

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 145.)

197. NUCIFRAGA CARYOCATACTES, L.

Nutcracker. Jap. 'Hoshi-garasu.'

A specimen taken to London in 1862 was indentified as the European bird. It is common on Fuji-sañ, and in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 326.)

198. GARRULUS BRANDTI, Evesm.

Jay. Jap. 'Miyama-kakisu.'

This bird was discovered to be a resident in Yezo in 1862. It has not been found on the Main Island, where its place is taken by *G. japonicus*. (Blakiston, 'Ibis,' 1862, p. 326: Whitely, 'Ibis,' 1867, p. 200 and Pt. III.: Swinhoe, 'Ibis,' 1875, p. 450.)

199. GARRULUS JAPONICUS, Bp.

Japan Jay. Jap. 'Kakisu.'

This Jay, which was given in the 'Fauna Japonica' as *Garrulus glandarius japonicus*, is one of the birds peculiar to Japan, and quite a local species, not having yet been found north of the straits of Tsugaru separating the Main Island from Yezo, where its place is taken by the preceding species *G. brandti*, which ranges to North China and Siberia.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 144.)

200. GARRULUS BIDTHI, Bp. (P. L. S. 1850, p. 80.)

Jay.

The existence of this species rests on the authority of an Italian gentleman. (See letter by Mr. W. A. Forbes, 'Ibis,' 1878, p. 491.) Probably an imported specimen from———?

201. STURNUS CINERACEUS, T.

Greyish Starling. Jap. 'Muku-dori.'

Breeds in holes in the fir trees about Kawasaki and Toukiyau, where it stays all the year round. Eggs pale blue. Is common in Yezo during summer. (Whitely, 'Ibis,' 1867, p. 200: Swinhoe, 'Ibis,' 1874, p. 159.)

Specimens in the Hakodate Museum.

202. STURNUS SERICEUS, Gmel.

White-headed Starling. Jap. 'Chiyau-señ muku-dori.

One specimen obtained by Mr. Ota (taxidermist) of Toukiyau from a bird-catcher, now in the Kiyou-iku Haku-butsu-kuwañ collection.

208. STURNIA PYRRHOGENYS, T. & S.

Red-cheeked Starlet. Jap. 'Shima-muku-dori.'

Generally distributed and migratory. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 327: Whitely, 'Ibis,' 1867, p. 201: Swinhoe, 'Ibis,' 1874, p. 159.)

204. LANIUS BUCEPHALUS, T. & S.

Bull-headed Shrike. Jap. 'Modzu.'

Builds near Yokohama in March. Stays all the year round in the plains. Eggs five or six, yellowish white, speckled with light brown; nest of dead grass and twigs, lined with finest grass. Obtained also at Nagasaki and in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 200: Swinhoe, 'Ibis,' 1875, p. 450.)

205. LANIUS SUPERCILIOSUS, L.

Shrike. Jap. 'Aka-modzu.'

This replaces *L. bucephalus* on the plains at the foot of Fuji-sañ. Obtained also in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 450.)

Nest large, made of dead grass; eggs 5 to 6, white, with a shade of brown; spots large; of a liver color.

206. LANIUS ESCUBITOR, Vig. (?)

Sub-species, *major*, Pall.

Great Grey Shrike. Jap. 'Oho-modzu.'

A single specimen obtained at Hakodate, in the Museum there, is referred to this species pending proper identification. (Seebohm, 'Ibis,' 1879, p. 31.)

207. CYANOPTILA CYANOMELANA, T.

Flycatcher. Jap. 'Oruri.'

This was figured in the 'Fauna Japonica' as two distinct species, the male as *Muscicapa melanolenca*, and the female as *Muscicapa gularis*. It is migratory and is found in Shikoku, Main Island, and Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 199.)

208. Butalis latirostris, Raffles.

Small Grey Flycatcher. Jap. 'Shima-modzu.'

This was included in the 'Fauna Japonica' as *Muscicapa cinereo-alba*. It is common throughout Japan, including Yezo, in summer.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 317, as *cinereo-alba:* Whitely, 'Ibis,' 1867, p. 199, as *cinereo-alba:* Swinhoe, 'Ibis,' 1874, p. 159: Seebohm, 'Ibis,' 1879, p. 31.)

Note.—*Butalis sibirica* may exist in Japan, and there are some specimens in collections which seem to differ sufficiently from *latirostris*.

209. Xanthopygia narcissina, T.

Narcissus Flycatcher. Jap. 'Kibitaki.'

This species does not always migrate, as a specimen was obtained north of Toukiyau in December. It is common in Yezo during summer. The female was figured in the 'Fauna Japonica' as *M. hylocharis*.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 318: Swinhoe, 'Ibis,' 1874, p. 159.)

210. Muscicapa mugimaki, T. and S.

Flycatcher. Jap. 'Ko-tsubame.'

Figured in the 'Fauna Japonica.'

211. Tchitrea princeps, T.

Long-tailed Flycatcher. Jap. 'Sañkochiyau.'

This, the most beautiful of the Flycatchers inhabiting Japan, is very common on Fuji-sañ. It has not been found to reach Yezo in its migrations. Eggs 5, long, white, spotted with red.

Specimens in the Hakodate and Toukiyau Museums.

212. Pericrocotus cinereus, Lafr.

Grey Minivet. Jap. 'Raifuri'—'Sañshiyaukui.'

Common on Fuji-sañ and in Yamato. Not known in Yezo. Flight and note resemble the grey Wagtail, for which it might easily be mistaken owing to similarity of plumage.

Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 31.)

213. Ampelis garrula, L.

Bohemian Waxwing. Jap. 'Ki-reñjaku.'

This European species, which inhabits North China, is not uncommon in Yezo, but has not yet been found south of that locality in Japan.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 158.)

214. AMPELIS PHŒNICOPTERA, T.

Eastern Waxwing. Jap. 'Hi-reñ-zhiyaku.'

This species, which is found in North China and Formosa, inhabits both the Main Island and Yezo, but on the latter island is not as common as the foregoing species.

Specimens in the Hakodate Museum. (Whitely, 'Ibis,' 1876, p. 200.)

NOTE.—*Pitta nympha* is given in the 'Fauna Japonica' from Korea.

Oriolus sp.—There are Japanese figures of Orioles which are said to be found in Kiushiu, which, being the nearest portion of Japan to China, is the most likely locality.

215. PARUS ATER, L.

Cole Tit. Jap. 'Hi-gara.'

Seems to be generally distributed on the Main Island and Yezo. Flocks of this bird, *Parus minor*, *Orestes Trivirgatus*, *Zosterops japonica* and *Rugulus japonicus* common in the winter on the plains. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 321: Whitely, 'Ibis,' 1867, p. 198: Swinhoe, 'Ibis,' 1874, p. 155: Seebohm, 'Ibis,' 1879, p. 31.)

216. PARUS PALUSTRIS, L.

Marsh Tit. Jap. 'Ko-gara.'

Was in former published lists given as *P. kamschatkensis* and *P. borealis*, but Mr. H. Seebohm, who has examined examples from all across the continents of Europe and Asia, comes to the conclusion that those names must only stand as sub-species. Common on the mountains of Nitsu-kuwau, Fuji-sañ and Ohoyama.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 321: Whitely, 'Ibis,' 1866, p. 198: Swinhoe, 'Ibis,' 1874, p. 156: Seebohm, 'Ibis,' 1879, p. 32.)

217. PARUS MINOR, T. & S.

Lesser-Tit. Jap. 'Shi-zhifu-kara.

Breeds high up Ohoyama and in Toukiyau. Seen commonly on the plains near Toukiyau in winter. Common in Yezo and on the Main Island.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 198: Swinhoe, 'Ibis,' 1874, p. 156: Seebohm, 'Ibis,' 1879, p. 33.)

Eggs white, spotted with red; nest built in a hole of a tree or rock.

218. PARUS VARIUS, T. & S.

Japan Tit. 'Yama-gara.'

Keeps in the mountains both summer and winter in the south. Is not uncommon in Yezo during summer. A favourite cage-bird with the Japanese. So far not found out of Japan.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 321: Swinhoe, 'Ibis,' 1874, p. 155.)

219. ACREDULA TRIVIRGATA, Temm.

Japan Long-tailed Tit. Jap. 'Wo-naga.'

This seems to be essentially a South Japan bird,—that is to say, not ranging beyond the Strait of Tsugaru separating Yezo from the main island. It breeds on Fuji-sañ and visits the lower country around Toukiyau and Yokohama in winter.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston and Pryer, 'Ibis,' 1878, p. 235.)

220. ACREDULA CAUDATA, L.

Long-Tailed Tit. Jap. 'Shima-wo-naga.'

This is the European species, which in Japan has not been yet found south of Yezo, where it is most abundant in winter.

Specimens in the Hakodate Museum. (Swinhoe, 'Ibis,' 1874, p. 156.)

221. ÆGITHALUS CONSOBRINUS, Swinhoe.

This bird was described by the late Mr. R. Swinhoe from China as a new species, but Mr. H. Seebohm is inclined to consider it only a subspecies of *A. pendulensis* of Europe. The only specimens known in Japan are in the Hakodate Museum, collected by Mr. F. Ringer at Nagasaki in February. (Seebohm, 'Ibis,' 1879, p. 33.)

222. SITTA EUROPEA, L.

Nuthatch. Jap. 'Ki-mahari.'

Specimens collected in Yezo have been sent to Europe for comparison, which although misnamed *S. roseilia* and *S. uralensis* are really only the European bird. (Blakiston, 'Ibis,' 1862, p. 322: Swinhoe 'Ibis,' 1863, p. 99: Whitely, 'Ibis,' 1867, p. 196: Swinhoe, 'Ibis,' 1874, p. 152: Seebohm, 'Ibis,' 1879, p. 34.)

Specimens in the Hakodate and Toukiyau Museums.

The southern form of this bird is much more rufous on the belly than northern specimens; it varies considerably in this respect, some specimens being almost entirely rufous and others from the same locality showing very little colouring. Northern specimens rarely have a trace of this colour.

228. ACCENTOR RUBIDUS, T. & S.

Accentor. Jap. 'Kaya-kuguri.'

Given in the 'Fauna Japonica' under the name of *Accentor modularis rubidus*. Several obtained at Nitsu-kuwau, Ohoyama and Fuji-sañ in winter, and also by Mr. H. Whitely at Hakodate.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 198.)

224. ACCENTOR ERYTHROPYGIUS, Swinh. (?)

Accentor. Jap. 'Iha-hibari.'

A live specimen obtained by Mr. Ota, something resembling *A. alpinus*, is attributed to this species, which is found in North China and Eastern Siberia. Found high up Fuji-sañ.

225. ANTHUS MACULATUS, Hodg.

Tree-Pipit. Jap. 'Biñdzui.'

This Pipit breeds commonly on Fuji-sañ; eggs five, whity-brown, patched with red-brown. Very abundant on the plains in pine plantations in winter. Also found in Yezo.

The late Mr. R. Swinhoe identified a specimen sent him as *Pipastes agilis*, Sykes, which Mr. H. Seebohm says is only a synonym of the European bird *Anthus trivialis*, L.

Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 34.)

Nest generally placed on the ground, made of grass, lined with fine grass, or the fruit stalks of moss.

226. ANTHUS JAPONICUS, T. & S.

Japan Pipit. Jap. 'Ta-hibari.'

In winter commonly about Yokohama. Specimens from several localities in Yezo. Mr. H. Seebohm considers this species the same as *A. ludovicianus*, Gm.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 198: Swinhoe, 'Ibis,' 1875, p. 449.)

227. ANTHUS CERVINUS, Pall.

Pipit.

Obtained on the Kuril Islands by Mr. N. Fukushi. Specimen in the Hakodate Museum. (Seebohm, 'Ibis' 1879, p. 34.)

228. ANTHUS, Sp. inc.

Pipit.

One specimen of another species collected by Mr. N. Fukushi at Satsuporo in Yezo, is in the Hakodate Museum.

229. MOTACILLA JAPONICA, Swinh.

Japan Pied Wagtail. Jap. 'Seguro-sekirei.'

Mr. H. Seebohm considers that this bird may be divided into two species. *M. lugens* and *M. amurensis*.

There are specimens from Toukiyau, Nagasaki, Yezo and Kamschatka in the Hakodate Museum, also in the Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 319, as *lugens:* Whitely, 'Ibis,' 1867, p. 198, as *lugens:* Swinhoe, 'Ibis,' 1874, p. 156, as *japonica.*)

230. MOTACILLA BOARULA, L.

Grey Wagtail. Jap. 'Ki-sekirei.'

This is the same as *M. melanope* of Pallus. It breeds on Fuji-sañ and in Toukiyau in the thatch of houses. Eggs dirty white, spotted with greyish brown. It inhabits the neighbourhood of Nagasaki, and also Yezo. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 318: Swinhoe, 'Ibis,' 1874, p. 157.)

231. CALAMOHERPE ORIENTALIS, T. & S.

Eastern Reed-Thrush. Jap. 'Oho-yoshi.'

The largest of the Reed-warblers, seems generally distributed wherever there are reed beds throughout Japan, including Yezo, during summer. Male very vociferous, singing during moonlight.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis.' 1862, p. 317: Swinhoe, 'Ibis,' 1874, p. 153.)

232. ACROCEPHALUS BISTRIGICEPS, Swinhoe.

Black-Eyebrowed Reed-wren. Jap. 'Ko-yoshi.'

This is the same as *Calamodyta maacki*, Schrench. In habits and song it is a miniature of the preceding species, but frequents the *Kaya* instead of reeds. Inhabits the Main Island and Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 154, as *C. maacki:* Seebohm, 'Ibis,' 1879, p. 35.)

233. CETTIA CANTANS, T. & S.

Japan Nightingale. Jap. 'Uguhisu.'

This bird is well known to all Japanese, and is a common cage-bird with them, being valued for its song, which is not extensive, but the few notes are sweet. Commences to sing about Toukiyau the last week in February. Is resident throughout the year in Southern Japan, but summers only in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 197.)

Mr. H. Seebohm is of opinion that *H. cantans* and *H. cantillans* are but one species, the smaller examples being usually females. This opinion is deferred to, and consequently *Salicaria cantillans* of the 'Fauna Japonica' included in former published lists (Blakiston, 'Ibis,' 1862, p. 318, and Whitely, 'Ibis,' 1867, p. 197) is here omitted.

234. UROSPHENA SQUAMICEPS, Swinhoe.

Scaly-headed Grass-Wren.

Several specimens at Fuji-sañ in summer. Specimens in the Hakodate Museum, collected in Yezo. (Swinhoe, 'Ibis,' 1874, p. 155, et 1877, p. 205, pt. IV.)

235. CISTICOLA CURSITANS, Frank.

Fan-tail Warbler. Jap. 'Señniu'.

Mr. H. Seebohm has named a specimen sent him as above, which he remarks is a prior name to *C. schœnicola*, Bonap., and we presume that *C. brunneiceps*, figured in the 'Fauna Japonica,' must also be referred to this species.

Specimen in the Hakodate and Toukiyau Museums from Toukiyau. (Seebohm, 'Ibis', 1879, p. 37.)

Builds a deep, frail nest by weaving together the leaves of the *Kaya* with the down from the flower of the same plant. A bird observed building in October. Remains about Yokohama all the year round.

236. CISTICOLA, (?) sp.

This bird is common in the marshes about Yokohama and Toukiyau, creeping about the reeds and aquatic thickets, but is difficult to catch. It is larger than the preceding species, but otherwise resembles it, excepting that it has no black on the underside of the tail. Length, 5¼ in.; wing, 2¼. Song resembles that of the grasshopper warbler.

237. LOCUSTELLA FASCIOLATA, Gray.

Moluccan Smoky Reed-Thrush.

This Mr. H. Seebohm says is the true name for *Calamodyta insularis* of Wallace, and *Calamoherpe fumigata* of Swinhoe.

Specimens only yet obtained in Yezo in the Hakodate Museum. (Swinhoe, 'Ibis,' 1876, p. 332: Seebohm, 'Ibis,' 1879, p. 35.)

238. LOCUSTELLA OCHOTENSIS, Midd.

Reed-Wren. Jap. 'Shima-señniu.'

The late Mr. R. Swinhoe identified a specimen from Hakodate as *Locustella subcerthiola* (Ibis,' 1874, p. 153) which he had previously considered to be *L. ochotensis*. ('Ibis,' 1863, p. 98.) He also described *Arundesiax blakistoni* in the 'Ibis,' for 1876, p. 332, fig. 1, pt. VIII., as a distinct species. Mr. H. Seebohm, however, is of opinion that the former is the adult, and the latter the young of one species.

Specimens in the Hakodate Museum.

239 LOCUSTELLA LANCEOLATA, Temm.

Diminutive Grass-Wren.

The late Mr. R. Swinhoe identified this from a specimen sent from Hakodate. ('Ibis,' 1875, p. 449.) He also was convinced that *L. hendersonii* (Cassin, Proc. Phil. Ac. S., 1858, p. 36) was identical with this species, which opinion is shared by Mr. H. Seebohm. ('Ibis,' 1879, p. 36.)

Specimens in the Hakodate Museum from Yezo.

240. LOCUSTELLA,———?

Specimens from Eturup.

241. PHYLLOSCOPUS CORONATUS, T. & S.

Willow-Wren. Jap. 'Meboso.'

The most common of this genus, both on the Main Island and Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 317: Whitely, 'Ibis,' 1867, p. 197.)

242. PHYLLOSCOPUS XANTHODRYAS, Swinhoe.

Willow-Wren.

Specimens obtained on Fuji-sañ, and in Yezo. One sent to Mr. H. Seebohm for identification. Resembles the preceding, but is larger and greener; the song is different, being very soft and sibilant. Observed breeding high up Fuji-sañ in July.

Specimen in the Hakodate and Toukiyau Museums.

243. PHYLLOSCOPUS BOREALIS, Blasius.

Willow-Wren.

The late Mr. R. Swinhoe said he had seen a specimen in the Leyden Museum from Nagasaki ('Ibis,' 1867, p, 333), and Mr. H. Seebohm mentions skins in the collections of Lord Tweeddale and Mr. Dresser from Japan. ('Ibis,' 1879, p. 36.)

244. PHYLLOSCOPUS TENELLIPES, Swinhoe.

Willow-Wren.

Mr. H. Seebohm mentions a specimen labelled "Hakodate, 5 May, 1865" as being in Lord Tweeddale's collection. ('Ibis,' 1879, p. 36.) This specimen would probably have been collected by Mr. H. Whitely, but the species was not included in his list published in the 'Ibis' for 1867.

245. TROGLODYTES FUMIGATUS, Temm.

Japan Wren. Jap. 'Misosazahi.'

Seems to be generally distributed throughout Japan, including Yezo. Southern examples are generally darker and smaller than Northern. Mr. H. Seebohm considers the Japan Wren as intermediate between those of Cashmere and Nepal, and the Canadian species. ('Ibis,' 1879, p. 87.)

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 152.)

246. REGULUS JAPONICUS, Bp.

Japan Regulus. Jap. 'Kiku-itadaki.'

Specimens obtained on the Main Island, Kiushiu and Yezo, in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 320: Whitely, 'Ibis, 1867, p. 196: Seebohm, 'Ibis,' 1879, p. 87.)

Very common on the plains about Yokohama in winter.

247. CINCLUS PALLASI, T.

Pallas's Dipper. Jap. 'Kaha-garasu.'

Common on mountain streams both on the Main Island and Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 449.)

248. ERITHACUS AKAHIGE, T. & S.

Robin. Jap. 'Komadori.'

Breeds on high mountains on the Main Island. Is a favourite cage-bird with the natives. Siebold in the 'Fauna Japonica' reversed the native names of this and the following species. M. Maximovitch mentioned having obtained a specimen of this bird at Hakodate.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston and Pryer, 'Ibis,' 1878, p. 239.)

249. ERITHACUS KOMADORI, T. & S.

Robin. Jap. 'Aka-higi.'

This species rests on the authority of the 'Fauna Japonica,' but native ornithologists say that it is not a resident in Japan, those occasionally seen in cages being obtained from Korea, which is borne out by the fact of its being the most expensive live bird sold by the dealers.

250. LARVIVORA CYANE, Pall.

Blue and White Robin. Jap. 'Ko-ruri.'

Breeds on Fuji-sañ, but is not common. A single specimen obtained at Hakodate is in the Museum these. (Blakiston and Pryer, 'Ibis,' 1878, p. 239.)

Is very shy and wary.

251. IANTHIA CYANURA, Pall.

Robin Bluetail. Jap. 'Ruribitake.'

In winter only about Yokohama; in summer high up Fuji-sañ and in Yezo. Also found at Nagasaki.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 318: Whitely, 'Ibis,' 1867, p. 197.)

252. CALLIOPE CAMTSCHATKENSIS, Gm.

Robin Rubythroat. Jap. 'Nogoma.'

Several specimens in Yezo and the Kuril Islands in the Hakodate Museum. (Blakiston and Pryer, 'Ibis,' 1878, p. 239.)

253. RUTICILLA AUROREA, Pall.

Redstart. Jap. 'Zhiyau-bitaki.'

Numbers winter on Ohoshima (Vries Island). Found also at Nagasaki and in Yezo during the summer season, and occasionally in winter.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 318: Swinhoe, 'Ibis,' 1875, p. 449.)

Common about Yokohama in the autumn, but not abundant in winter.

254. PRATINCOLA INDICA, Blyth.

Indian Stonechat. Jap. 'Nobitaki.'

Closely allied to the European species *rubicola*. Breeds on Fuji-sañ about Yamanaka Lake. Found at Nagasaki; very plentiful during summer in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 318: Whitely, 'Ibis,' 1867, p. 197: Swinhoe, 'Ibis,' 1874, p. 155.)

255. PITTA, Sp. inc. (?)

Ground Thrush.

Pitta nympha of the 'Fauna Japonica' was based on a drawing taken by a Japanese artist at Nagasaki from a bird said to have been brought from Korea. The late Mr. R. Swinhoe found such a bird in a cage at Chefoo. ('Ibis,' 1874, p. 446.)

256. MONTICOLA SOLITARIA, Müll.

Blue and Red Rock-Thrush. Jap. 'Iso hiyo-dori.'

Found about rocks on the coasts. Very abundant on Hatsu shima, Idzu. Occasionally seen about the roofs of houses in the settlement of Yokohama in winters. Common during summers in Yezo. Obtained also at Nagasaki.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 319: Whitely, 'Ibis,' 1867, p. 199: Swinhoe, 'Ibis,' 1874, p. 157.)

Very common on the Bonin Islands.

257. HYPSIPETES AMAUROTIS, T. & S.

Brown-Eared Bulbul: Local 'Screecher.' Jap. 'Hiyo-dori.'

This bird, familiarly known by foreign residents as the 'Screecher,' seems generally distributed throughout Japan, being found at Nagasaki, the island of Shikoku, the country around Yokohama, Yamato, etc., and in Yezo, where an occasional one has been observed even in winters. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1872, p. 320: Whitely, 'Ibis,' 1867, p. 199: Swinhoe, 'Ibis,' 1874, p. 158.)

Nest placed in a bush made of twigs, moss and roots, and lined with finer roots; eggs 5, pinkish white, spotted with liver-red.

258. TURDUS SIBERICUS, Pall.

Siberian Thrush. Jap. 'Mame-zhiro.'

This bird was figured only in its immature plumage in the 'Fauna Japonica,' and was obtained only in that state at Hakodate in 1861. Adult birds have now been collected at Fuji-sañ, and one sent to Mr. H. Seebohm for comparison. A beautiful songster.

Specimens in the Hakodate Museum. (Blakiston, 'Ibis,' 1863, p. 98: Seebohm, 'Ibis,' 1875, p. 37.)

259. TURDUS PALLIDUS, Gmel.

Pale Thrush. Jap. 'Shiropara.'

This thrush was given in the 'Fauna Japonica' as *Turdus daulias*, and Mr. H. Whitely, following this example, gave the same name to a specimen obtained by him at Hakodate. ('Ibis,' 1867, p. 199.)

Specimens have since been obtained on the Main Island and at Nagasaki. (Blakiston and Pryer, 'Ibis,' 1878, p. 240: Seebohm, 'Ibis,' 1879, p. 37.)

Not uncommon in bamboo thickets in winter about Yokohama.

260. TURDUS CARDIS, T.

Thrush. Jap. 'Kuro-tsugu' and 'Ko-ke.'

Valued by the Japanese as a cage-bird for its fine song. Breeds commonly on Fuji-sañ. Nest almost wholly of moss, and often on a stump or against the side of a tree. Eggs five, of a greenish or reddish white, patched all over with amber-brown. Found also at Nagasaki and in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 319: Whitely, 'Ibis,' 1867, p. 199.)

261. TURDUS NAUMANNI, T.

Red-tailed Fieldfare. Jap. 'Akazhinai.'

This Thrush does not seem to be abundant. Mr. Ota has obtained it from Fuji-sañ, and specimens in the Hakodate Museum, collected in the neighbourhood, have been compared with China examples. (Blakiston and Pryer, 'Ibis,' 1878, p. 241.)

This species was formerly confounded with *T. fuscatus*. (See Editor's note, 'Ibis,' 1862, p. 319.)

262. TURDUS OBSCURUS, Gmel.

Eyebrowed Pale Thrush.

This was figured and described in the 'Fauna Japonica' as *T. pallens*, and is a common species in China and Siberia. The Museums in Japan are without examples.

263. TURDUS CHRYSOLAUS, T.

Thrush. Jap. 'Akapara.'

This Thrush varies much in the darkness of the throat. Specimens from Nagasaki, Yokohama, and Yezo, in the Hakodate Museum, have been compared with China examples. Also in the Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 199: Blakiston and Pryer, 'Ibis,' 1878, p. 241.)

Breeds on Fuji-sañ; sweet songster; seen in the plains about Yokohama in winter, generally solitary. Nest placed in bushes made of grass, moss and twigs; eggs 5, light bluish-green, speckled all over with small spots of reddish-brown.

264. TURDUS FUSCATUS, Pall.

Eastern Fieldfare or Brown Thrush. Jap. 'Chiyauma.'

The most common species of Thrush in Japan. Very abundant in winter about Toukiyau and Yokohama, and some found in winter in

Yezo. Also obtained at Nagasaki. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 319: Swinhoe, 'Ibis,' 1874, p. 157.) We do not know where this breeds.

265. OREOCINCLA VARIA, Pall.

White's Thrush. Jap. 'Nuyejinai.'

One of the few, if not the only Thrush ranging from the Atlantic to the Pacific across the continent of Europe and Asia. It is exposed for sale in considerable numbers in the Yokohama market in winter. Obtained also at Nagasaki and in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 144.)

Obtained at Fuji-sañ in July, where it was most probably breeding. It has no song, only a soft plaintive whistle consisting of the syllable 'see,' which can be heard for a long distance; very shy, but can easily be attracted by imitating its whistle.

266. ALAUDA JAPONICA, T. & S.

Japan Lark. Jap. 'Hibari.'

Notwithstanding Northern China is so prolific in species of larks, this is the only one yet identified as belonging to the Japan Islands. There is some variation in size, but all the examples sent to the late Mr. R. Swinhoe were pronounced to be of the one species, and that species not known as an inhabitant of the neighboring continent of Asia. It will, however, possibly turn out that other species are to be found in Japan, because the probability is, that at any rate stragglers are blown over from Korea. The species under this heading is common throughout the country, including Yezo, and has been found breeding on Fuji-sañ. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 327: Whitely, 'Ibis,' 1867, p. 203: Swinhoe, 'Ibis,' 1874, p. 161, et 1877, p. 145.)

Nest placed in the grass; eggs 5, thickly speckled with dark brown.

367. OTOCORYS ALPESTRIS, L.

Shore Lark.

Although inhabiting America as will as Europe, and being common in Mongolia, this bird is only entitled to a place in this catalogue from being included in the 'Fauna Japonica' on the authority of a Japanese drawing.

268. EMBERIZA CIOPSIS, Bp.

Japan Meadow-Bunting. Jap. 'Hoho-zhiro.'

This is the most abundant Bunting on the Main Island, and one of the few birds which remain on the plains to breed. It seems equally common in Yezo, and is found also at Nagasaki. Piebald and other varieties are not uncommon. It is the *E. cioides* of the 'Fauna Japonica.'

Specimens in the Hakodate and Toukiyau Museums. (Blakiston 'Ibis,' 1862, p. 328: Whitely, 'Ibis,' 1867, p. 202: Swinhoe, 'Ibis,' 1874, p. 161: Seebohm, 'Ibis,' 1879, p. 38.)

Nest made of dry grass, lined with fine rootlets, placed on or near the ground; eggs 5, whitish to brownish-white, and scrawled over with black; very variable.

269. EMBERIZA FUCATA, Pall.

Painted Bunting. Jap. 'Hoho-aka.'

Breeds on Fuji-sañ. Common in winter around Yokohama. Tolerably abundant in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 328: Whitely, 'Ibis,' 1867, p. 202: Swinhoe, 'Ibis,' 1874, p. 161.)

270. EMBERIZA ELEGANS, T.

Bunting. Jap. 'Miyama-hoho-zhiro.'

This is not a common bird, but the most beautiful of the Japan Buntings. It is said to be obtained at Nitsu-kuwau, and also in the neighbourhood of Nagasaki.

Specimen in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 145.)

271. EMBERIZA RUSTICA, Pall.

Rustic Bunting. Jap. 'Kashira-daka.'

This bunting is very common in the Southern part of the Main Island in winters, and in Yezo in summers. It ranges across Siberia to North-east Europe, and an occasional straggler has been taken in England.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 328: Whitely, 'Ibis,' 1867, p. 202: Swinhoe, 'Ibis,' 1874, p. 161.)

272. Emberiza personata, Pall.

Masked Bunting. Jap. 'Awozhi.'

A very common bird all the year round about Toukiyau. Breeds on Fuji-sañ; nest generally placed on the ground, made of dead grass. Eggs five, whitish, with brown patches and darker spots. Common in Yezo, where it seems the earliest in spring and latest in autumn of all the Buntings, some few remaining during winter.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1874, p. 161.)

273. Emberiza aureola, Pall.

Bunting. Jap. 'Shima-awozhi.'

A specimen obtained by Mr. N. Fukushi in Yezo, and one procured at a bird shop in Toukiyau, are in the Hakodate Museum. (Blakiston and Pryer, 'Ibis,' 1878, p. 243.)

274. Emberiza variabilis, T. & S.

Bunting. Jap. 'Kurozhi.'

Rather common on Ohoyama in winter. Also obtained in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 450.)

275. Emberiza sulphurata, T. & S.

Bunting. Jap. 'Nojiko.'

Seems to be a southern bird, being common on Fuji-sañ in June and July, few being found in Yezo. It is a cage-bird with the natives. This bird migrates in winter.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 203: Blakiston and Pryer, 'Ibis,' 1878, p. 243.

276. Emberiza rutila, Pall.

Ruddy Bunting. Jap. 'Shima-nojiko.'

Figured in the 'Fauna Japonica.'

277. Emberiza yessoensis, Swinh.

Yezo Bunting. Jap. 'Nabikaburi.'

This Reed-Bunting is found in grass swamps in Yezo during summer. It has also been obtained at Fuji-sañ in July. Specimens in the Hakodate and Toukiyau Museums. When first discovered, in 1861,

it was taken to be *E. minor*, Midd. (Blakiston, 'Ibis,' 1863, p. 99.) The late Mr. R. Swinhoe, however, described it as seen later ('Ibis,' 1874, p. 161), and it has since been figured in the 'Ibis,' 1879, pt. I., and Mr. H. Seebohm has appended some remarks. ('Ibis,' 1879, p. 39.)

278. EMBERIZA SCHOENICLUS, Linn.

Reed Bunting Jap. 'Oho-jorin.'

Common in the Yokohama game-market in winters. Found in Yezo in summer. The late Mr. R. Swinhoe described a specimen sent him from Yezo as a new species under the name of *Schoenicola pyrrhulina*, and it was figured in the 'Ibis' ('Ibis,' 1876, p. 333, pt. VIII.), but Mr. H. Seebohm considers *E. palustris* of Savi, and *S. pyrrhulina*, as only forms of the Reed Bunting of Europe *E. schoenicola*, differing solely from that type in having thicker bills, and not entitled to rank above sub-species. (Seebohm, 'Ibis,' 1879, p. 40.)

Specimens in the Hakodate and Toukiyau Museums. Thousands congregate in the reed beds, together with the foregoing, in winter, eating the seeds.

279. PLECTROPHANES NIVALIS, L.

Snow Bunting. Jap. 'Uki-hozhiro.'

A specimen is in the Hakodate Museum, obtained in the neighbourhood.

280. FRINGILLA MONTIFRINGILLA, L.

Brambling. Jap. 'Atori.'

Large flocks are found in winter near Yokohama and Toukiyau and it is not uncommon in Yezo. It is the same as the European species.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 201: Swinhoe, 'Ibis,' 1874, p. 160.)

281. PASSER MONTANUS, L.

Tree-Sparrow. Jap. 'Suzume.'

This is the common house-sparrow of Japan. Eggs very variable.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 327: Whitely, 'Ibis,' 1867, p. 202: Swinhoe, 'Ibis,' 1877, p. 145.)

282. PASSER RUTILANS, Temm.

Russet Sparrow. Jap. 'Niunai-suzume.)

This may be called the wild sparrow of Japan, being generally found in uncultivated districts. It doubtless migrates. It is occasionally brought into the Yokohama market from Koshiu.

It is not uncommon in Yezo. This species is well figured in the 'Fauna Japonica' under the name of *P. russatus*.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 328: Swinhoe, 'Ibis,' 1877, p. 145.)

283. CHLOROSPIZA KAWARAHIBA, T. & S.

Japan Goldenwing. Jap. 'Kahara-hiha.'

This bird is figured in the 'Fauna Japonica.' Yezo specimens identified by the late Mr. R. Swinhoe. Whitely, 'Ibis,' 1867, p. 202: Swinhoe, 'Ibis,' 1874, p. 160.)

Specimens in the Hakodate and Toukiyau Museums. Breeds on Fuji-sañ, where it has been obtained in summer.

Procured singly or in pairs. Beak, flesh colour in summer.

Much larger and less brightly colored than the following species. The figure given in the 'Fauna Japonica' is very good.

284. CHLOROSPIZA SINICA, L.

China Goldenwing.

This is the *Fringilla kawarahiba-minor* of the 'Fauna Japonica.' It is found in China, while the former species is not, that is to say, unless they have been confounded. Mr. H. Whitely included this in his Hakodate lists, and considered it the most common of the two species. ('Ibis,' 1867 p. 202.) We have examined specimens from Yokohama, Toukiyau, Fuji-sañ, Ohoyama and Nagasaki.

The measurements given in the 'Fauna Japonica' converted into English inches are—

Kawarahiba,—6.02x3.65.

Kawarahiba-minor=sinica,—5.20x3.20.

Mr. H. Whitely's are respectively 5.75x3.50 and 5.12x3.25.

Very gregarious, keeping together in flocks of a hundred or more.

285. CHRYSOMITRIS SPINUS, L.

Siskin. Jap. 'Ma-hiha.'

This bird, extending in range across the whole continent of Europe and Asia, is common in Japan, including Yezo. It is caught in large numbers by the natives for caging.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 327: Whitely, 'Ibis,' 1867, p. 201.)

286. LINOTA LINARIA, Linn.

Mealy Redpoll. Jap. 'Beni-hiha.'

Specimens from Yezo were indentified by the late Mr. R. Swinhoe as *Ægiothus borealis*, Temm. ('Ibis,' 1874, p. 160), and it is generally admitted that this bird is an inhabitant of North China and Japan.

287. LINOTA RUFESCENS, Viell. (?)

Lesser Redpoll. Jap. 'Ko-beni-hiha.'

In the Hakodate Museum are specimens collected in Yezo of this or the preceding species, or both. The late Mr. R. Swinhoe considered that one of the specimens sent him was this species, which he called *Ægiothus linaria*, L., and his note says:—"This species is easily distinguished from the last by its smaller size, by having less white on the rump, and scarcely any edging to its tail feathers. The Hakodate skin agrees with home-shot specimens." ('Ibis,' 1874, p. 160.) On the other hand Professor Alfred Newton, in the number of his new edition of "Yarrell's British Birds," published November, 1876, considers this species to be confined to Western Europe. There is another form, *Ægiothus exilipes*, of Dr. Cowes, smaller than the Mealy Redpoll, which one of the Japan birds—if there are really two—may turn out to be.

288. LEUCOSTICTE BRUNNEINUCHA, Brandt.

Ground Finch. Jap. 'Hagi-mashiko.'

This bird is common in flocks about Hakodate in winter, and has been found there as late as May. Mr. N. Fukushi obtained it on the Kuril Islands in July.

Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 202: Swinhoe, 'Ibis,' 1875, p. 450.)

289. URAGUS SANGUINOLENTUS, Temm.

Long-tailed Rose Finch. Jap. 'Beni-mashiko.'

A common bird in Yezo and at Nitsu-kuwau and Fuji-saũ. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 328: Whitely, 'Ibis,' 1867, p. 208: Swinhoe, 'Ibis,' 1874, p. 160.)

290. CARPODACUS ROSEUS, Pall.

Rose Finch. Jap. 'Oho-mashiko.'

Specimens shot in Yezo; others purchased from bird shops in Toukiyau. The late Mr. R. Swinhoe, to whom one was sent, pronounced it to be of this species. ('Ibis,' 1877, p. 145.)

Specimens in the Hakodate Museum.

291. PYRRHULA ENUCLEATOR, Linn. (?)

Pine Grosbeak. Jap. 'Giñzañ-mashiko.'

The Kai-taku-shi department possesses a bird said to have been obtained in Yezo, probably of this species.

It is quite possible that the Scarlet Grosbeak, *P. erythina*, Pall., which ranges across Siberia as far as Kamschatka—a much smaller bird—may also be found in Japan.

292. COCCOTHRAUSTES JAPONICUS, Bp.

Japan Hawfinch. Jap. 'Himi.'

Seen about Yokohama in winter; tolerably common in Yezo, Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 201: Swinhoe, 'Ibis,' 1874, p. 160.)

The separation of this as a species distinct from the European *C. vulgaris*, Pall., is questioned by ornithologists, but the late Mr. R. Swinhoe retained the name in his paper on the "Birds of Chefoo." ('Ibis,' 1875, p. 121.)

293. COCCOTHRAUSTES PERSONATUS, T. & S.

Masked Grosbeak. Jap. 'Ikaru.'

This bird, described originally from Japan in the 'Fauna Japonica,' like the preceding and following species, is also an inhabitant of China. It is found commonly on Fuji-saũ in July. It has a pleasing note, and is capable of being made very tame. Examples also obtained in Yezo. (Whitely, 'Ibis,' 1867, p. 201: Swinhoe, 'Ibis,' 1877, p. 145.)

Specimens in the Toukiyau Museums.

294. Coccothraustes melanurus, Gmel. (?)

Black-tailed Grosbeak. Jap. 'Shima-ikaru.'

The Kiyou-iku Haku-butsu-kuwañ has a specimen obtained from a bird dealer in Toukiyau about the size of *japonicus*. The bill is yellow, tipped with black. Head and neck black all round as far down as 12 millimetres behind the eye.

295. Loxia albiventris, Swinh.

Swinhoe's Crossbill. Jap. 'Isuka.'

The late Mr. R. Swinhoe described the representative in North China of the common Crossbill of Europe, *L. curvirostra*, L., as a distinct species. (P. Z. S. 1870, p. 437). Ornithologists doubt the white belly distinction being sufficient to give it more than a sub-specific rank. It can stand, however, till farther observation clear up the question. Out of a collection of specimens made in Yezo, and now in the Hakodate Museum, Mr. Swinhoe's identification was made. (Swinhoe, 'Ibis,' 1875, p. 450.)

Very common in the year 1878 about Toukiyau and Fuji-sañ. Specimens in the Toukiyau Museums.

296. Pyrrhula orientalis, T. & S.

Eastern Bullfinch. Jap. 'Teri-uso.'

Valued much by Japanese as a cage-bird. Found in winter about Yokohama; heard on Fuji-sañ in July. Not uncommon in Yezo. Specimens in the Hakodate and Tokiyau Museums. (Blakiston, 'Ibis,' 1862, p. 328: Whitely, 'Ibis,' 1867, p. 203: Swinhoe, 'Ibis,' 1874, p. 160.)

297. Nyctea Scandiaca, L.

Snowy Owl.

A live specimen brought into Hakodate, obtained in the neighbourhood on 29th Nov., 1879, is probably the first recorded instance of this bird in Japan.

298. Ninox japonicus, T. & S.

Brown Hairy-footed Owl. Jap. 'Awoba-dzuku.'

This peculiar owl was described in the 'Fauna Japonica' as *Strix hirsuta japonica*. It is not uncommon in summer about Yokohama, and a specimen in the Kai-taku-shi Museum is said to have been

obtained in Yezo. Mr. R. Swinhoe remarks in his Chefoo notes ('Ibis,' 1874, p. 433) that the northern race is larger, deeper coloured, and less rufescent than that of Southern China.

Specimen in the Hakodate Museum.

299. Syrnium rufescens, Temm.

Owl. Jap. 'Fukurou.'

Mr. H. Seebohm has named a specimen sent him as *S. uralense*, sub-species *fucescens*. ('Ibis,' 1879, p. 41.)

This is the most abundant owl met with in the neighbourhood of Toukiyau. It is found also in Yezo, where the specimens are lighter than those from the South. Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 194: Blakiston and Pryer, 'Ibis,' 1878, p. 246.)

Nest in a hole in a tree; eggs two to three, very round, white, but generally soiled; 2 inches long and 5 inches in circumference.

300. Asio accipitrinus, Pall.

Short-Eared Owl. Jap. 'Ko-mimi-dzuku.'

Tolerably common in Yezo, probably also on the Main Island. Specimens in the Hakodate Museum. (Whitely, 'Ibis,' 1867, p. 195: Blakiston and Pryer, 'Ibis,' 1878, p. 246: Seebohm, 'Ibis,' 1879, p. 41.)

This is the *Otus brachyotus* of many ornithologists; is found nearly all the world over, and is a migratory bird.

301. Asio otus, L.

Long-Eared Owl. Jap. 'Tora-fu-dzuku.'

Not uncommon about Yokohama; also found in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Whitely, 'Ibis,' 1867, p. 195: Blakiston and Pryer, 'Ibis,' 1878, p. 246: Seebohm, 'Ibis,' 1879, p. 41.)

This is the *Otus vulgaris* of former nomenclature. It inhabits the greater part of the continents of Europe and Asia and Northern Africa. The North American representative is usually considered a distinct species.

302. Bubo ignavus, T. Forster.

Eagle Owl. Jap. 'Shima-fukurou.'

This is the *B. Maximus* of most authors inhabiting Europe and Asia.

The Yamashita Haku-butsu-kuwañ Museum possesses a live example, and a specimen obtained in Yezo is in the Hakodate Museum. (Blakiston and Pryer, 'Ibis,' 1878, p. 247.)

303. Scops sticTonotus, Sharpe.

Owl.

A specimen sent from Hakodate was pronounced by the late Mr. R. Swinhoe as of this species, distinct both from *S. sunia*, and *S. japonicus*. It remains to be seen if there are not two species of these diminutive Owls in Japan.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 448.)

304. Scops semitorques, Schleg.

Owl. Jap. 'Oho-ko-no-ha-dzuku.'

This Owl, tolerably abundant in Yezo, was identified from there by the late Mr. R. Swinhoe. ('Ibis,' 1875, p. 448.)

Specimens in the Hakodate Museums.

305. Scops semitorques-major.

Large specimens from Yokohama and Toukiyau only, Hakodate specimens being small.

We have thought it best to separate the two forms provisionally.

306. Aquila chrysaetus, L.

Golden Eagle. Jap. 'Inu-washi.'

This is included in the 'Fauna Japonica' as *A. fulva*, on the authority of a Japanese drawing. A live specimen at the Kiyou-iku Haku-butsu-kuwañ, and one obtained in the Yokohama game market, are attributed to this species. The Haku-butsu-kuwañ specimen had at first a white tail, which changed to greyish brown, conspicuously barred with black.

307. Haliaetus albicilla, L.

White-tailed Eagle. Jap. 'Oho-zhiro-washi.'

This is the common fishing Eagle of Japan. In Yezo it is numerous on those parts of the coast most frequented by salmon. It also breeds there. The Ainos keep it in confinement in wooden cages, in the same way as they do young bears.

Specimens in the Hakodate and Toukiyau Museums.

308. HALIAETUS PELAGICUS, Pall.

Northern Sea Eagle. Jap. 'Oho-washi.'

The existence of this fine Eagle in Japan,—the authority of the 'Fauna Japonica' having been doubted by some ornithologists,—is now confirmed by the Kiyou-iku Haku-butsu-kuwañ having received a specimen from Kafu-shiu.

The Hakodate Museum contains specimens from Kamschatka and the Sea of Okhotsk.

309. PANDION HALIAETUS, L.

Osprey. Jap. 'Misago.'

The Osprey builds near Yokohama on Saru-shima, where it remains the year round. A specimen collected by Mr. F. Ringer at Nagasaki was found to agree with one in the Hakodate Museum collected in Yezo.

310. MILVUS MELANOTIS, T. & S.

Black-Eared Kite. Jap. 'Toñbi.'

This common bird in the east is found in numbers throughout Japan. It is very useful as a scavenger. The nest is often placed in a *Cryptomeria*, and is composed of a large platform of sticks, with bits of rag, paper, etc., for lining. Nidification in the neighbourhood of Toukiyau commences early in March, the young, however, not leaving the nest before June. Lays two large eggs of a dull white, with liver-coloured blotches. Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 314: Whitely, 'Ibis,' 1867, p. 194: Swinhoe, 'Ibis,' 1874, p. 150.)

311. SPIZAETUS NIPALENSIS, Hodgs.

Eagle Buzzard. Jap. 'Kuma-taka.'

This fine bird breeds on Ohoyama, where it remains the year round; it can easily be attracted within shot by imitation of a monkey's cry. Specimens obtained in Yezo in the Hakodate Museum. Also in the Toukiyau Museums.

312. ARCHIBUTEO LAGOPUS, Gm.

Rough-legged Buzzard. Jap. 'Keashinosuri.'

Specimens obtained at Hakodate, in the museum there, are referred to this species.

313. Buteo japonicus, T. & S.

Japan Buzzard. Jap. 'Aka-nosuri.'

There is a little doubt as to this bird ranking as a species, it being considered by some ornithologists as *B. plumipes*, Hodgs. Mr. J. H. Gurney is of opinion that the pale form figured in the 'Fauna Japonica' as immature, is merely a less rufous phase of plumage. A specimen was sent to Mr. Seebohm early in 1878.

Specimens in the Hakodate and Toukiyau Museums. (Blakiston and Pryer, 'Ibis,' 1878, p. 248: Seebohm, 'Ibis,' 1879, p. 41.)

314. Buteo hemilasius, T. & S.

Buzzard. Jap. 'Oho-nosuri.'

This rests on the authority of the 'Fauna Japonica,' where it is figured.

315. Butastur indicus, Gmel.

Buzzard. Jap. 'Sashiba.'

Very common in Yamato and Shikoku, where it is almost the only Hawk to be seen at certain seasons. As yet not found in the north.

Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 42.)

It was given in the 'Fauna Japonica,' as *Poliornis poliogenys*, which now drops into a synonym only.

316. Pernis ptilorhynchus, Temm.

Japan Honey-Buzzard. Jap. 'Hachi-kuma.'

When the 'Fauna Japonica' was published this was considered to be identical with the Honey Buzzard of Europe, which it has proved not to be. (Seebohm, 'Ibis,' 1879, p. 42.)

317. Astur palumbarius. L.

Goshawk. Jap. 'Oho-taka.'

This is the bird most used by the Japanese for hawking, a sport which was much practised in the feudal times, but which is little kept up now.

Obtained at Nitsu-kuwau, Toukiyau, Yokohama, and in Yezo. Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 42.)

318. Accipiter nisus, L.

Sparrow-hawk.

This is a common bird both on the Main Island and Yezo. Is also used for hawking. The Japanese call the male 'Konori' and the female 'Haitaka.'

Specimens in the Hakodate and Toukiyau Museums. (Blakiston, 'Ibis,' 1862, p. 314: Whitely, 'Ibis,' 1867, p. 194.)

Authentic specimens from Japan are in the collections of Lord Tweeddale and Messrs. Salvin and Godman. (Seebohm, 'Ibis,' 1879, p. 42.)

319. Accipiter gularis, T. & S.

Hawk. Jap. 'Tsume.'

Figured in the 'Fauna Japonica.' Obtained in Yezo by Commodore Perry's expedition. (Swinhoe, 'Ibis,' 1863, p. 443.) Other specimens since obtained. (Seebohm, 'Ibis,' 1879, p. 42.) It is considered by some as only a large form of *A. virgatus*, Temm.

Specimens in the Hakodate and Toukiyau Museums. Specimens form Nitsu-kuwau and Tsuruga.

320. Cerchneis tinnunculus.

Sub-sp. *japonicus*, T. & S.

Japan Kestrel. Jap. 'Maguso-daka.'

Deferring to opinions of leading ornithologists, this bird is only given the rank of a sub-species of the European Kestrel. It seems common enough in the south, including Nagasaki, but examples have not yet been obtained in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Seebohm, 'Ibis,' 1879, p. 42.)

Eggs 5, reddish-white, patched with red-brown; often builds in a hole in a cliff or bluff.

321. Hypotriorchis subbuteo, L.

Hobby. Jap. 'Chigo-hayabusa.'

Tolerably abundant in Yezo. Specimens in the Hakodate Museum. (Swinhoe, 'Ibis,' 1875, p. 448: Seebohm, 'Ibis,' 1879, p. 42.)

322. Hypotriorchis æsalon, L.

Merlin. Jap. 'Koteu-geñbo,'

Very common on the Main Island; probably the most numerous Hawk in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1877, p. 144: Seebohm, 'Ibis,' 1879, p. 45.)

N.B.—*H. amurensis* was wrongly admitted in the catalogue of the Birds of Japan published in the 'Ibis,' 1878.

323. FALCO PEREGRINUS, Tunst.

Peregrine Falcon. Jap. 'Hayabusa.'

This widely distributed bird, although resident in Japan, is believed not to be used by the natives for hawking.

Specimens collected in Yezo are in the Hakodate Museum. (Blakiston, 'Ibis,' 1862, p. 314: Whitely, 'Ibis,' 1867, p. 194.)

324. CIRCUS CYANEUS, L.

Hen-Harrier. Jap. 'Teuchi.'

Common in the winter at Susaki, Toukiyau; in summer in Yezo.

Specimens in the Hakodate and Toukiyau Museums. (Swinhoe, 'Ibis,' 1875, p. 448.)

325. CIRCUS SPILONOTUS, Kaup.

Harrier.

Specimens obtained in Yezo in the Kai-taku-shi at Shiba, Toukiyau, and in the Hakodate Museum. One procured at Awomori was identified by Mr. R. Swinhoe. ('Ibis,' 1877, p. 144.)

Also in the Toukiyau Museums.

THE "KANA" TRANSLITERATION SYSTEM.

By F. V. Dickins.

[*Read March 9, 1880.*]

I am unable to accept the principles upon which the new scheme for romanizing Japanese, as set forth in Mr. Satow's recent paper, is based; and venture, therefore, to lay before the Society the grounds of my dissent, concluding, as I think I am bound to do, with a statement of what I conceive to be a more rational and convenient mode of transliteration.

Of late years, orthographical systems have been discussed upon scientific lines, and practical rules established for the recording of articulate sounds by more or less clear and simple methods. The nearly unanimous consent of European orthographers and philologers has established the supremacy of phonetic over etymological systems of writing and spelling, and the differences that exist—and very wide and serious they are—among those who have made a special study of the subject, relate almost wholly to the practical application of a law or rule itself well-nigh universally accepted and which may be formulated in the following terms:—

An alphabet should consist of as few letters as possible, keeping a due mean between poverty and redundancy, and each letter should have a constant value which should always be given to it.

Did an universal alphabet exist, the whole science of orthography would be summed up in this law, each articulate sound of human speech being represented by a distinct symbol. But in the use of the

roman alphabet, which does not represent the whole of the articulate sounds in any language, the law requires modification and must be thus expressed:—

An alphabet in roman should consist of as many letters and combinations of letters as are necessary to represent the articulate sounds of the language to which it is applied and no more; and each of such letters and combinations should have a constant value which should always be given to it.

The first law is better exemplified in the Devanagari than in any alphabet I am acquainted with.

The second law is, I believe, more strictly adhered to in the modern orthography of Spanish than in that of any existing European language.

Orthography, however, does not aim at more than recording articulate sounds; accent, emphasis or tone cannot well be represented by letters, and the quantity of vowels in roman can only be marked by signs or by doubling the vowel to represent the quantity when this is long.

That a right and convenient orthography is a matter of no inconsiderable importance will readily be admitted by all who have given any thought to the subject. The evils resulting from an imperfect, clumsy and obscure system are sufficiently patent, and affect not merely the present but each succeeding generation. A confused and uncertain orthography, such as that of our own language, following no law, phonetic or other, and stuffed with useless and false etymologies, not only renders the education of the masses vastly more difficult than it need be, but stands in the way of ourselves and our literature being adequately known and appreciated by foreigners, to our and their (I dare to say) great and permanent harm. It is a monstrous absurdity to spell 'cough,' 'though,' 'plough,' 'rough,' and 'through,'—five totally distinct sounds—with the same letters 'ough,' not one of which has its proper value given to it, for the normal English 'u' is that of 'put,' 'full,' etc., not that of 'gun,' 'dull,' etc. Great, however, as the absurdities and inconveniences of our orthographical system are, it is a question whether the inconveniences of any very considerable change of it would not be greater, and I cannot say that I am prepared to welcome any revolutionary modification which might require too large a sacrifice

on our part in the interests of posterity. With the Japanese language, however, the case is altogether different. There we have to deal not with the reformation of an existing, but with the creation of a new, roman orthography, and there is no reason why the best possible system in that character should not be adopted. I have enunciated the law which is admitted by European philologers and orthographers to form the only proper orthographical rule, and which is essentially phonetic in principle. I need only cite as authorities the Spanish academy, the spelling reformers of Germany, and such names as Max Müller, Skeat, Morris, Sweet and Ellis. But the *kana* transliterators of Japanese, wholly ignoring European orthographical science, look upon the phonetic principle as of merely subordinate value, and base their system mainly upon etymology. Their view seems to be that, so far as the Japanese language at least is concerned, the writing and spelling of words should rather record facts in their history than afford a clear and certain guide to their pronunciation. It is with great diffidence that I venture to oppose my own opinion to the deliberate expressions of such well-known scholars as Mr. Satow and Mr. Chamberlain, but I cannot think they are right in this matter. I am not aware of any peculiarity in the Japanese language involving the propriety of a different orthographical treatment of it from that of other languages, and I shall, in the sequel, try to show that the new system cannot be justified by the plea of any special practical convenience or need, on the part of Japanese scholars or the general public, foreign or Japanese, being met by it. The basis of Japanese orthography must, I believe, be phonetic, as is most assuredly the basis of European scientific—or, to use a more fitting expression—rational orthography. Etymology is an important and most interesting science, but with it, in my opinion, the symbolization of articulate speech has no concern whatever. Orthography is, strictly speaking, an art rather than a science—the art of recording language—and, while using the simplest available means, should be based upon the fewest, clearest and most constant rules. Great as the scientific interest of etymology undoubtedly is, its practical value is small, while the advantages of an uncomplicated orthography are of the highest moment to the millions who are concerned with reading and writing their language, and have little or no need of being reminded in the

spelling of each word of facts in its history. A word, indeed, alphabetically written upon an etymological system, is a mere Chinese character composed of alphabetic elements: surely a monstrous sort of hybrid not in any case to be created, and only to be accepted when already existent under inevitable need.

In addition to these general, there are, to my mind, special, objections to the proposed system of transliteration. The Japanese *iroha* is (mainly) a syllabic alphabet wholly unfit for representation *syllabically* in an alphabet of a different kind. In uttering the word 'Yokohama' we simply recapitulate the syllabic *iroha* characters of which it is composed by name, but as written in roman the characters are not pronounced *nominatim* but are used as symbolic representations of sounds. The transliteration of *iroha* into roman must follow the laws of the latter alphabet, just as in making a translation, however literal, from Japanese into English, we follow the syntactical and other rules of English not of Japanese grammar and composition. But the *kana* transliterators transliterate more than literally:—it is as if in putting Japanese into English they gave indeed the English equivalent for the Japanese words, but arranged the former in the order required by Japanese syntax—something of a convenience possibly to Japanese scholars, but a plan utterly unsuitable for the general public or for general purposes.

My venturous criticism upon Mr. Satow's essay, or rather upon the orthographical portion of it,—for with that alone do I feel myself competent to deal,—is based upon the understanding that the scheme set forth in it is intended for universal acceptance not only among foreigners, but among the Japanese themselves when they shall have the wisdom and the courage to discard both the Chinese character and their own *kana*.

My opinion is, and long has been, that not all the reforms hitherto made in Japan are collectively of anything like the importance that attaches to a romanization of the language. I have not space here to do more than indicate the grounds of my opinion. My own experience of the language is that the difficulties met with in its acquirement are almost wholly difficulties of decipherment. The best scholars among us read the easiest and most clearly printed Japanese painfully; the most intelligible handwriting is a mystery save to perhaps a dozen Europeans,

and probably not a single European can handle the Japanese brush with the ease of a very ordinarily educated native. Few natives even (I have often made the experiment) can read the common books with fluency,—can read phrases or lines at a glance as we can in English; each character or word must be singled out by eye and mind and separately perceived and comprehended. A native clerk, acquainted with roman, who for some time was in my employ, and who had to translate or copy for me numerous legal documents written in Japanese, as well as make extracts from books, was induced by me (chiefly for my own convenience) to use roman in all transcriptions from his own language. I found such transcriptions, after a little practice, as easily legible and intelligible as similar matter in French or German would be. I could indeed run the eye over them with almost the same ease as over English documents, with immense saving of time and energy. And this though the major part of such transcriptions consisted of Sinico-Japanese. Not only was this result achieved, but the clerk himself soon came to prefer his romanized transcriptions to copies or originals in the Japanese character. In short, after much pondering over a subject that has been matter of reflection with me during many years, I am persuaded that the romanization of Japanese would do more toward perfecting the civilizatory changes now in progress, by facilitating the education of the people of Japan in the more extended sense of the expression, and by enabling them more easily to understand and be understood by the rest of the world, than the whole mass of reforms that have taken place since the downfall of the Tokugawa dynasty. The education of the people would be relieved of at least two-thirds of the difficulties that at present attend upon it, the spread of knowledge would become possible, and political reforms,[1] without which any real or permanent advance of the nation is

[1] As matters are, it appears to me that the government is drifting more and more into the hands of a set of bureaucratic oligarchs, among whom those who have been in Europe or America, and have there become tinctured with western ideas, not very completely understood, will have the greatest influence, and will be, at the same time, the least in unison with their countrymen. Political power cannot be vested in the hands of the masses without concomitant education, which in any sufficient degree is impossible so long as about seven years study is necessary for a native to become properly conversant with the actual modes of writing his own tongue.

not to be dreamed of, would thus become feasible. I cannot dwell longer on the advantages that would result from the changes; they are sufficiently obvious, and, indeed, may be easily realised by imagining for a moment the effect in a country like England of an adoption of Japanese modes of representing the language in a written form. I shall, however, mention shortly one benefit that would almost surely be brought about—an immense one, though of a purely literary character—the arrestment, namely, of the degradation of the language actually in rapid progress. Indeed, Japanese is fast disappearing as a written language, and becoming replaced by a splay-footed and inharmonious species of broken-down Chinese, difficult of composition and more so of comprehension. This particular kind of degradation is only possible so long as Chinese characters are employed; the false mintage of current writers would of necessity cease when they found themselves obliged to use Japanese materials—not mere Chinese signs—to express their ideas with. In the term 'Japanese materials' I of course include such Sinico-Japanese words as have been sanctioned by sufficient usage. There are ample stores of such materials in existence without having recourse to mere sign-combinations which instruct the eye rather than the ear, and which widen the breach—already too wide—between the written and spoken languages. Indeed, I should like to see the use of even admitted Sinico-Japanese restricted as much as possible; new combinations might, I think, be made in nearly all cases of purely Japanese elements, with the result of a much more harmonious and much more intelligible language than would otherwise be attainable.[2] I cannot here anticipate objections; the most serious one would be the length of certain combinations of Japanese elements, but these would not be longer than what we find in German. Chinese might still be resorted to somewhat as we resort to Latin and Greek—a practice which our best writers, however, unite in avoiding as much as possible.

I do not admit Mr. Chamberlain's contention that there are practically two languages in Japan. I am still myself though the molecules of

[2] A Japanese language thus developed, with a few more regular syntactical rules than at present seem to be followed, would be an admirable vehicle of thought, and quite capable in time of producing a valuable literature of its own, as well as of clear and brief conveyance of western ideas.

my body may be replaced every seven or ten years, and despite the immense and most regrettable influx of Chinese into the language of Japan, it is still Japanese that the people write and speak, just as Johnsonian was still English though stuffed with words of non-English origin. In all countries with any literature there is a more or less considerable difference between the language of society and that of books. In English a large number of words, chiefly of Latin and French derivation, are hardly met with out of books; such as, for instance, 'effulgent,' 'commodious,' 'calamity,' etc., which in oral intercourse would be replaced by 'bright,' 'convenient,' 'misfortune'; but it would not, I think, be therefore correct to say there were two English languages. Nor, indeed, if Mr. Chamberlain's assertion were true, do I understand how the fact could warrant any departure from an orthographical law itself laid down on a rational basis.

I fail completely, also, to see how the *kana* system can subserve any special convenience or need of Japanese scholars. These are just the very last persons to require being reminded every time they wish to write or read the word *sôrô* that it may once have been *safurafu* by such a wonderful (to ordinary unlearned folk) spelling of it.

My criticism upon the details of the *kana* scheme will be found in the presentment of what I venture to call the natural system of transliteration, or phonetic romanization of Japanese. But to illustrate and make clear the meaning of the foregoing remarks, I shall take to pieces a single example of *kana* orthography, and I cannot choose a better one than the Chinese ideograph—for it is nothing else—*zhiyau*, which I write, and the *kana*-spellers as well as myself and the whole population of Japan pronounce, *jô*. In *zhiyau* not a single letter retains the phonetic value given to it in the *kana* alphabet; did they retain that value the combination would be pronounced not *jô*, but *dzu-hee-yah-oo*. Was any character, now so *kana*-spelled, ever thus pronounced? I more than doubt it. If never, and still not, so pronounced, why so spell it? What fact of value, what certain fact valuable or valueless, does such a spelling preserve record of? What need, special or general, does it subserve? Under any theory that I can think of the letters 'i' and 'y' are redundant, or rather superfluous, both phonetically and etymologically. The combina-

tion 'zh' is unnecessary, representing what may be equally well if not better represented by 'j.' And 'au' in the same way represents what (as I conceive) may be equally well if not better represented by 'ô.' With regard to this mode of representing the long 'o'[8] I may be permitted some amplification. It is a great, if not the greatest point in the scheme I am considering, that the long 'o' should be represented in some cases by 'ou,' in others by 'au' in Sinico-Japanese. Thus, it is said, the fact of derivation from a Chinese syllable ending in 'ang' or 'ung' will be preserved, and 'tau' (Ch. *tang*) will be distinguished from 'tou' (Ch. *tung*). This may be true, but as I have previously shown, orthography has nothing to do with etymology at the expense of clearness and constancy of sound. Just as no one would dream of inventing an English orthography which would use the same letters 'o u g h' to represent five different sounds ('though,' 'rough,' 'thought,' 'plough,' 'through'), so no one, I conceive, ought to invent a Japanese orthography which would use a number of different letters or combinations to represent the same sound. What is unwise economy in the one case—orthographical stinginess—is unwise redundancy—orthographical prodigality—in the other. Again, is the distinction worth preserving? I think not.

We are not sure that Chinese 'ang' and 'ung' were ever pronounced 'au' (ah-oo) or 'ou' (oh-oo) by the Japanese. The spelling 'au,' 'ou' was perhaps meant as an imitation of the Chinese nasal sound before the invention of the *kana* character ん which (I cannot remember upon what authority I make the statement) I believe was invented after the rest of the *iroha*. I do not understand how a nasal (properly pharyngeal) sound produced at the back of the mouth without the aid of buccal or labial muscular action could glide into a sound 'ah-oo' or 'oh-oo' produced at the front of the oral cavity with buccal and labial assistance. The theory, therefore, on which 'ang' and 'ung' are represented by 'au' and 'ou' I am compelled to reject. I can better comprehend the spellings 'teu' and 'seu' so far as the 'eu' is concerned, because these Sinico-Japanese syllables commonly represent Chinese originals in 'ao,' and 'ao' readily enough glides into 'eu' (eh-oo). Again, 'au' does not always represent 'ang' nor 'ou' 'ung';

[8] Also represented by the combinations 'eu,' 'efu,' 'afu,' 'ofu' and 'oho.'

nor does either, in any case, indicate more than a relation to a *class* of 'ang'' or 'ung' (or 'ing') Chinese syllables, never to the actual Chinese original save when (if ever) the 'class' is reduced to a single individual. For instance, 'mau' might indicate a specific original if there were in Chinese but one single character with the sound 'mang'; if there were two or more so sounded the spelling 'mau' would merely show that the Chinese original was one of a number of characters each pronounced 'mang.'

Many of the Chinese syllables now pronounced with final 'ang' were anciently pronounced with final 'ung,' 'eung,' or even 'ong,' and it is therefore possible that 'au' may be in many cases a wrong replacement of 'ou' on the *kana* system itself.

I shall now take the syllable *shô* and see what the spellings *shiyau* and *shiyou* may respectively indicate.

Shiyau may indicate any of the following Chinese characters pronounced in current Kwanhwa: 'chang,' 'ch'ang,' 'chwang,' 'shang,' 'shŏng;' in other dialects 'cheung,' 'chiong,' 'ch'eung,' 'ch'iong,' 'chong,' 'chiung,' 'sheung,' 'shiong,' 'shang,' 'seng,' and anciently 'tung' 't'ung' and 'shung':—章 and compounds 掌昌償敞莊商傷裳上晌生省 and many others, *quæ nunc perscribere longum est.*

Shiyou may indicate any of the following Chinese signs pronounced in current Mandarin: 'chung,' 'ch'ung,' etc.: anciently 'tong,' 't'ong,' etc.:—鐘, 種 憧, 衝 and others. Also not a few characters pronounced 'ching,' 'ch'ing,' and 'shing' in Mandarin are written in *kana* with final 'ou.' Thus 烝, 徵, 政, 正 (and compounds) 稱, 成, 丞, 承, 升 (and compounds) 勝, 声, 繩, 乘, 聖, 墜, etc., etc., are, in Sinico-Japanese dictionaries, commonly transliterated in 'ou,' as 'shiyou,' 'zhiyou' or 'chiyou.' Some, perhaps, ought to be rendered with 'ya' in lieu of 'yo.'

From the above it is abundantly clear that the spellings 'ou' and 'au' preserve no record of any valuable etymological (or other) fact—of, indeed, any certain fact valuable or valueless—except that some characters pronounced now with final long 'o' sound are in Japanese dictionaries usually spelt 'au' and 'ou.' But why introduce phonetic inconstancy and redundancy merely to record a practice of Japanese dictionaries—a

practice, too, not invariable, for in some the Sinico-Japanese 'ô' is represented not by 'au,' 'ou,' but by 'afu,' 'ofu'? The *kana* spelling of 'ô,' then, is admittedly of no phonetic use, and I show that it is of no etymological value either. Has it any practical value? It may distinguish to the eye 'tou's' from 'tau's,' but not one 'tou' from another 'tou,' or one 'tau' from another 'tau.' I think I am justified in saying that it would not be worth while to add a dot to a written word for the purpose of making the first mentioned distinction. I may here remark, parenthetically, that in Chinese the older sound of 'ang' was nearly always 'ung,' the reverse seldom obtaining; and 'ou' (in Sinico-Japanese), therefore, is a more legitimate spelling in all probability than 'au.' Still, whatever may have been the reason, 'ang' was generally rendered 'au' or 'afu,' and 'ung' 'ou' or 'ofu'; but as the reason, whatever it was, no longer exists, and as the spelling phonetically inadmissible is etymologically and practically valueless, I do not see why it should be re-created in a romanized transliteration. To abolish it in using the *kana* syllabaries were another matter, with which I do not here concern myself.

In what precedes I must not be understood to assert that orthography ought to take no notice of etymology. On the contrary, there are in all languages words susceptible of various spellings, in the choice of which etymology and practical convenience may be useful guides. But orthography ought in no case to yield to etymology—or at least such cases are extremely rare; it may concede something to practical convenience in instances of special importance. The law and rule I have ventured to enunciate involve in their application the greatest possible economy of letters, and thus of time, type and paper—no inconsiderable advantages. By way of illustration I give a sentence taken from Mr. Aston's grammar, written according to the *kana* scheme, and according to my own, which I term the Natural System.

Shiyo kañ wo mochite keizhiyau itashi safurafu. (40 letters, one mark.)

Sho kan wo motte keijô itashi sôrô. (28 letters, 3 marks.)

I believe the letter-economy on the natural system is, in relation at all events to Sinico-Japanese, fully thirty per cent. on the letter-labour of the *kana* system. Lastly, Japanese, like Spanish and Italian,

is a language peculiarly suited for phonetic representation. The vowel sounds are distinct, there are no diphthongs, no difficult aggregations of consonants, and very few peculiar sounds.

I shall now present my own natural scheme, not as a perfect one, but as '*matériel pour servir*.'

The general rules of it are sufficiently simple.

1st. Full value to be always given to each letter or combination.

2nd. The alphabet consists of certain letters and certain combinations having constant values.

3rd. The vowels are sounded as in Italian, except 'u'.

4th. The consonants sole and in combinations are pronounced as in English.

5th. 'U' is pronounced as in English 'put,' 'full,' etc.; the combination 'hi' and the letters 'g,' 'n,' 'r' have peculiar values, differing somewhat but not much from their values in English and most continental languages.

[In 'zhiyau' (jô) every one of these rules is transgressed—*O scelus!*—unless, indeed, the whole be considered as a kind of ideographic combination, to which plea I should put in the replication that it is an uneconomical and unnecessary combination of unsuitable elements.]

The alphabet consists of the following vowels, a, e, i, o, u, pronounced as in Italian, save 'u' which is sounded as in English 'put,' 'full;' for ω see below. There are no diphthongs, full value being given to each member of a combination of vowels. The consonants and their combinations are, following the order sanctioned in Mr. Satow's paper[2]:—k, g, s, sh, z, t, ts, ch, d, j, dz, n, h, hi, f, p, b, m, y, r, w. All are pronounced as in English, subject as undersaid.

'G.' Always hard. I agree entirely with what is proposed in Mr. Satow's paper, page 239, relative to this letter.

'S,' 'sh.' See the above paper, page 240. But ジ I write 'ji.' ジ has exactly that value; 'zh' has it not in any language that I know of. Whether there was ever any difference between ジ and ヂ I am not sure. I am sure there is none now, and there is no etymological advantage to be gained, by writing ジ and ヂ differently, to counterbalance the phonetic confusions and redundancy that would result

[2] Transactions, vol. vii, page 255.

from such a transliteration. Nor is 'zh' a fit combination. Z was originally pronounced 'sd' (then as in old English confounded with y); 'h' is an aspirate and in ぢ I find nothing of either sound. ぢ again does not bear the relation to じ that 'zh' bears to 'sh,' which is exactly that of the 's' in 'occasion,' 'pleasure,' etc., to the 'ss' in 'passion.' But I do not think that this 'zh' ('s' in 'occasion,' 'pleasure,' etc., or French 'j' sound) exists in Japanese at all.

I ought to have stated that as some standard must be adopted, I adopt the pronunciation of the better classes in Yedo as mine.

'Ch' with 'sh' and—but in a less degree—'hi' are the only empirical combinations; 'ts' and 'dz' have the full value of their constituents: indeed they are not, strictly speaking, combinations at all.

'Dz' is only to be used with the vowel 'u,' and represents both ず and づ.

'N' is to be written simply. At the end of syllables it possesses a slight nasality (more accurately pharyngeality). In Sinico-Japanese compounds a hyphen should intervene between the final 'n' of a first and a beginning vowel of a sequent syllable. The hyphen tends, among other advantages it has, to indicate equality of stress of accent on the elements of a Sinico-Japanese compound. Thus 'kuwan-on,' 'kon-i,' not 'kuwanon,' 'koni.' To my mind the Spanish 'ñ' does not represent the sound: the Sanscrit 'n' with a dot over it would be more correct. The nasality is often very slight, and replaced by a double 'n' sound, e.g. 'tennô,' 'yennin,' for 'ten-ô,' 'yen-in.' Before consonants other than 'k' and 'g,' 'n' is not nasalised more at all events than in English. 'Hannen,' 'andon,' anraku,' 'konjitsu,' etc., etc., do not at all need to be written with ñ. It is to be remembered, too, that Sinico-Japanese syllables in 'n' are *not* forms of the distinctly nasal Chinese syllables in 'ng.' The nasalisation is probably euphony only, and as I have said is often hardly perceptible. Such at least is my experience.

'H' is always a strong aspirate. I doubt the wisdom of using it before terminal 'u' and 'i' of verbs ('omohu,' 'omohi'); 'ohoi' I should write 'ôi,' 'he,' 'ye,' unless the 'h' be used as an aspirate. But see *post*.

'Hi' I should use for the peculiar sound described in Mr. Satow's paper.

'F' has always its full value. I should not write 'fu' or 'fi' except where the 'f' was pronounced with full value. In my scheme it would only be found with the vowel 'u.'

'R,' 'P,' 'B,' 'M,' 'Y' are sufficiently treated of in Mr. Satow's paper.

'W' is used with 'a' only, save in the particle 'wo.'

I now pass on to the important subject of orthography, premising that I can attempt here nothing more than a sketch, which others with more leisure and greater competence *ad hoc* must fill up. Imperfect as the Roman alphabet is, it is a much more perfect sound-representing means than the *kana* syllabary, and in using the better it does not appear to me wise to limit oneself in the least degree by the worse mode.

And first as to vowel spelling.

I do not make—it is not necessary to make—any diphthongs in Japanese. The vowel-combinations are 'ai,' 'au' ('afu' 'ahu' in *kana*), 'ei,' 'iu' ('ifu,' 'ihu' in *kana*), 'ou' permissibly ('ofu' 'ohu' in *kana*), 'aa' or long 'â' as in 'obaasan,' 'ii' or long 'î' as in 'yoroshii,' 'oo' or long 'ô,' of which more anon, and 'uu' or long 'û' as in 'fuufu.' The double vowels I spell as pronounced—double. Each vowel combination—each element—it may be fairly said has full value given to it in a good pronunciation.

The sound of long 'ô,' in Sinico-Japanese especially, I prefer to write so—whether represented in *kana* by 'au,' 'eu,' or 'ou.' I should still more prefer to write it like the contraction for 'ra' in old English MS. or the Omega in modern Greek and Russian, thus:—'ω.' This character might be adopted when the Japanese take to romanization. But where 'ô' is represented in *kana* by 'ofu,' as in 'omofu,' I think 'ou' (or 'owu') may be written. In words like 'omofu' I fancy the 'u' sound is perceptible. At any rate it is worth while to try to preserve it for reasons of clearness and convenience as well as of etymology. 'Omou' as contraction for 'omoku' (heavy), no doubt will be liable to be confounded with 'omou' (to think); but all anomalies cannot be avoided by any system, and position always makes it easy to distinguish between a verb and an adjective. A combination like 'yefu' is difficult to treat. I think as the 'o' sound runs through the conjugation, 'yefu' should be spelt 'you' (or perhaps 'yowu'). In cases like 'yoku,'

contracted into 'yô,' I see no objection to the form 'yo'u,' as we write in English 'I'm,' 'don't,' 'he's;' as in Dutch, 's Gravenhoge;' as in French 'l'on,' 'd'un,' etc., etc. And in any case 'omowu' is preferable to 'omofu,' the latter form being misleading phonetically, the former only redundant. The same observations apply to words like 'warawu,' 'kirawu,' which may be so written, or 'warau,' 'kirau,' which I prefer; but I cannot stomach 'kirafu,' 'warafu,' whether or not the Japanese so signified their hatred or mirth ten or twenty centuries ago. 'Oho' in 'ohoi,' 'Ohozaka,' etc., I should write ô (or ω). I think the 'ho' is a mere intensitive lengthener like the second 'o' in Dutch 'oo,' and that the 'h' was never pronounced: it certainly has no value given to it in the Japanese speech of the day.

Where 'ki,' 'gi,' 'ni,' 'hi,' 'ri' precede 'y,' I am inclined to preserve both 'i' and 'y;' thus 'kiyô,' 'giya,' etc., for to my ear both are sounded. If both are not retained I should prefer to retain the 'y.' 'Kyôto' would be less likely to be mauled than kiô as in Kiôto '(kye-oh-to). 'Ke,' or 'ge,' followed by 'u' of course become 'kiyô, 'giyô,' 'meu,' 'miyô;' so 'seu' becomes 'shô'; 'teu' 'chô'; 'deu'' 'zeu,' jô; 'heu,' hiyô; 'beu,' 'biyô.' 'Shi,' 'chi,' 'ji' preceding 'y' the combination loses 'i' and 'y' thus:

shiya, shiyo, sha, sho.
chiya, chiyo, cha, cho.
jiya, jiyo, ja, jo.

It is an essential part of my scheme that 'h' should never be written unless intended to be pronounced as an aspirate. Thus I write 'kuwan,' not 'kuhan' (as it is often spelt in *kana*). I go so far as to write 'kawa,' not 'kaha.' I cannot see the advantage of writing 'ka-ha' and pronouncing 'ka-wa.' I do not retain the 'h' in verbal forms. 'Warahi,' 'samurahi' *(kana)* I prefer as 'warai,' 'samurai'; or at least as 'warawi,' 'samurawi.'

'H' before 'e' presents some difficulty, but I should still follow the rule and write 'kayeri,' not 'kaheri;' 'haraye' not 'harahe.' I am not sure indeed that it would not be still better to write simply 'kaeri,' 'harae.'

The *kana* 'ye' I should always so write. In words like 'yenrio,' 'yennin,' the 'y' sound is always to my ear more or less distinct, in 'yen' especially so.

The double consonants likewise present some difficulty, but I should nevertheless write them double instead of with preceding 'tsu' or 'ku' or 'chi' or 'ri,' unless these syllables are to be pronounced, as is sometimes the case. 'Mochite,' 'arite,' etc., I have often heard so pronounced in lieu of 'motte,' 'atte,' especially in law-courts in reading judgments, etc., etc. Thus my scheme would give,—

nikki,	not	nitsuki.
ittau,	"	itsutau.
icchi (itchi?),	"	itsuchi.
akki,	"	akuki.
issho,	"	itsusho.
hiyappo,	"	hiyaku-ho.
rippa,	"	ritsuha.

'Ku,' 'gu,' before 'wô,' should be written in full. Thus 'kuwô,' not 'kô' (光). The pronunciation 'kuwô' ('u' short as always in Japanese) is not uncommon, and an endeavour should be made to retain it.

ꝛ appears to be exactly the Sanskrit 'lri.' This peculiar 'r' seems to be most commonly pronounced before 'i,' not before other vowels. ꝛ does not, I think, occur in any Japanese word as an accented syllable.

To my ear the accent in Japanese, especially in the pure language, tends to throw itself on the last syllable, save where this is 'u,' and in the latter case on the penultimate. The same obtains in French (the exception as to 'u' being replaced by a similar one as to 'e' mute), and as a consequence in French, as in Japanese, the stress of accent is much less than in English, German, or Italian. The 'e' mute sound, as in French 'menu,' 'dehors,' German, 'muhme,' 'deutsche,' does not exist in Japanese (nor in Italian or Spanish).

'D' is not, I think, found in pure Japanese at all; in Sinico-Japanese only before 'a' and 'o.'

'F' I find only before 'u.' 'L' not at all, nor 'P' (in Japanese words), save in onomatopoetic expressions.

'Si,' 'ti,' 'tu,' and the French 'j' are absent; so also both 'th' sounds and that of 'v.'

'W' and 'Y' are always consonants in my scheme.

I claim the following advantages to be possessed by the Natural over the *kana* system.

1. Considerable economy of letters; hence of type, time and paper.

2. Constancy of letter-value; hence freedom from phonetic uncertainty, while no etymological fact of any importance is lost.

3. Accordance with the spelling reform tendencies of most modern European languages (and with the spelling scheme advocated by Dr. Hunter under the Indian government for the romanization of Indian languages), which are wholly phonetic. Sanskrit to some extent is an exception, but this is chiefly because the Devanagari is itself a most perfect phonetic non-syllabic alphabet.

4. Briefer and easier for the Japanese themselves and for foreigners to learn and adopt.

5. The letter-values approximate so nearly to those of most European alphabets that most Europeans would sufficiently well pronounce Japanese without special study; Englishmen alone would have to remember that the vowels have a continental value (save 'u').

6. The easy rule, consonants and their combinations as in English, vowels as in Italian, practically sufficient for ordinary purposes; the peculiar sounds 'hi,' 'ri,' etc., pronounced according to this rule not considerably differing from the true pronunciation.

7. Less departure from the commonly received system.

The only disadvantages I can think of are:—

1. Some antique pronunciations would not be recorded.

2. Relation of Sinico-Japanese words ending in 'ô' to their Chinese originals would somewhat but not greatly be obscured.

3. In some instances words similarly pronounced would lose the eye distinction of difference in spelling.

Thus *shiyau-nin (shônin)* 商人, 'a merchant,' would not be distinguishable from *shiyou-nin (shônin)* 證人 'a witness.' The disadvantage here is real, but not, I submit, so great as to counterbalance the advantages I have enumerated. I do not think the number of words similarly pronounced to be numerous. There are of course a great many 'shô' and 'jô,' but these are commonly in some combination. Besides the *kana* system does not distinguish between the many 'shô' and 'jô' spelt シ ョ ウ and ジ ョ ウ respectively; it distinguishes at the most but the class spelt with ヤ ウ from that spelt with ョ ウ.

In cases like 'omô' (omoku), 'omô' (omofu), 'omoi' (omoki, omoshi), 'omoi' (omofi), I think it might be advisable to spell 'omo'u' (omoku), 'omowu' (omofu), 'omo'i' (omoki, omoshi), 'omowi' (omofi). This would preserve an useful eye-difference without introductions of phonetic confusion. Indeed the 'w' in 'omowu' might be of service in conserving a slight difference of pronunciation between 'omô' (heavy) and 'omô' (to think).

Lastly, the Natural System would, as I have pointed out, tend indirectly yet powerfully to arrest the process of degradation to which literary Japanese more especially, but the spoken language, though to a less degree, as well, is being subjected.

NATURAL SCHEME OF ROMANIZATION OF THE 'IROHA.'

イ i　イウ iu　イフ iu (iwu).

ロ ro　ロウ rô　ロフ rô rou (rowu).

ハ ha　ハウ hô　ハフ hau (hawu). When h is not aspirated, wa.

パ pa.

バ ba.

ニ ni　ニヨ niyo　ニウ niu.

ホ ho　ホウ hô　ホフ hô hou (howu). When h not asp. wo or o.

ポ po.

ボ bo.

ヘ he　ヘウ hiyô. When h not asp. ye or e.

ペ pe.

ベ be.

ト to　トウ tô　トフ tô tou (towu).

ド do.

チ chi　チヤ cha　チヨ cho　チヤウ chô　チヨウ chô　チウ chiu.

ヂ ji.

リ ri　リヤ riya　リヨ riyo　リヨウ リヤウ riyô.

ヌ nu.

ル ru.

ヲ and オ o　オウ ô　オフ ô ou (owu). ヲ accusative particle wo.

ワ wa　ワウ ô (wô perhaps better, certainly so after ク or グ).

カ ka　カウ kô　カフ kau (kawu).

ガ ga.

ヨ yo　ヨウ yô　ヨフ yô you (yowu). After チ or シ the y is lost.

タ ta　タウ tô　タフ tau (tawu).

ダ da.

レ re　レウ riyô　レフ (?) riyô, riyou, riyowu (rewu).

ソ so　ソウ sô　ソフ sô sou (sowu).

ゾ zo.

ツ tsu　ツウ tsuu　ツフ (?) tsuu, tsuwu, tsu'u.

ヅ dzu.

ネ ne.

ラ ra　ラウ rô　ラフ rau (rawu).

ナ na　ナウ nô　ナフ nau (nawu).

ム mu.

ウ u when not compounded with a or o sound.

ノ no　ノウ nô　ノフ nô nou (nowu).

ク ku.

グ gu.

ヤ ya ヤウ yô ヤフ (?) yau (yawu). Loses y after チ.

マ ma マウ mô マフ mau (mawu).

ケ ke ケウ kiyô.

ゲ ge.

フ fu when f is sounded, otherwise u or wu.

プ pu.

ブ bu.

コ ko コウ kô コフ kô kou (kowu).

ゴ go.

エ and ヱ ye エウ yô エフ you (yowu) (yewu).

サ sa サウ sô サフ sau (sawu).

ザ za.

テ te テウ chô.

デ de デウ jô.

ア a アウ ô アフ au (awu).

キ ki キヤ kiya キヨ kiyo キヨウ キヤウ kiyô.

ギ gi.

ユ yu where y is pronounced, otherwise u.

メ me メウ miyô.

ミ mi ミヤ miya ミヨ miyo ミヨウ ミヤウ miyô.

シ shi　シヤ sha　シヨ sho　シシヨヤウウ shô.

ジ ji.

ヒ hi where h asp., otherwise i or wi.

ピ pi.

ビ bi.

モ mo　モウ mô　モヲ mô mou (mowu).

セ se　セウ shô.

ゼ ze　ゼウ jô.

ス su.

ズ dzu.

ン n.

In the above scheme are some sounds represented which I am not sure exist in Japanese. For certain of the *iroha* combinations, a choice of roman transliterations is offered; but, throughout, the phonetic principle is adhered to for endings such as (モフ)(マフ)(モヒ)(マヒ)(モウ).[4] I cannot quite please myself between (mou mowu) (mau mawu) (moi mowi) (mai mawi) (mô mo'u). On the whole I incline in each case to the former mode. In 'yefu,' to be drunk, we have an anomaly, but throughout the conjugation of the word the 'yo' sound is, I think, adhered to. With double consonants I should write the mark of omission ('); thus, ak'ki, rip'pa, is'sho, it'chi (or ic'chi?). This would not be unphonetic, and would indicate a proper stress on the doubled consonants.

I have written the foregoing pages, *currente calamo*, and do not put forward my criticism or my scheme as exhaustive or accurate. It were impossible for me, having no authorities at hand and writing chiefly from memory, to submit more than an imperfect sketch of what I conceive to be the weak points in the *kana* scheme, and of a better

[4] There will be the Sinico-Japanese モウ about which I do not hesitate. I represent it by mô. Then there is モウ, contraction for モク, as チモク, heavy. This *might* be written mo'u.

system. But neither distance from Japan nor the pressure of other occupations than the pleasant one of discussing *cosas de Japon* will ever make me lose, I trust, my deep interest in the country where I have spent so many of the best years of my life—in its past and future, in its people, their fortunes, language and literature. And I hope that my desire to be useful in this matter of transliteration will stand me as some defence for inflicting upon the society the foregoing paper, which I feel to be a crude presentment of imperfectly thought-out conceptions.

F. V. DICKINS.

2 Temple Gardens,
London, October, 1879.

DISCUSSION.

The President, after thanking the author, and also Mr. Dallas for reading the paper, suggested that a phonetic system of transliteration might be found useful in providing a good means for beginning the study of the language, as had been found to be the case by the advocates of the phonetic spelling of English. It had to be borne in mind that no phonetic system could be absolutely accurate in expressing all the delicate varieties of sound in any one language. He was sorry to see that Mr. Satow was absent, but he hoped Mr. Chamberlain would have something to say.

In reply to the President's invitation to address the meeting, Mr. Chanberlain, while paying a tribute to Mr. Dickins's well-merited reputation as a Japanese scholar, could not help drawing attention to the fact that, in citing as a parallel to the "orthographic" spelling of Japanese the historic method of spelling our own tongue which is now so very generally condemned by scientific philologists, Mr. Dickins had coupled together two things between which there is scarcely any resemblance. The common English spelling is *not* consistently etymological, nor indeed consistent in any way. The Japanese spelling of all native words *is* indisputably etymological. Even if Mr. Dickins's contention against the value of the etymologies of words borrowed from the Chinese be admitted for the sake of argument, it was already abundantly shown in Mr. Satow's original paper on the subject of transliteration that it would be highly inconvenient to allow the romanization of such words to proceed on a different principle to the romanization of words of native origin. The most trenchant arguments by which the phonetic reformers of England, and of one or two continental countries support their proposed innovations therefore fall to the ground in this place. If, following Mr.

Dickins's example, European precedents are to be brought forward, let us rather adduce that of Greece, whose case is almost exactly parallel to the case of Japan. There, too, there is an ancient tongue, the vehicle of almost all the literature, and a modern dialect whose pronunciation is so much corrupted that, to say nothing of other peculiarities, no fewer than seven letters or combinations of letters are spoken with the one sound *i*, reminding one of the variously written Japanese *ô's*, whose unfamiliar spelling has of late been made the butt of so much ridicule. Would now, let it be asked, any one seriously propose that Greek as a whole,—ancient literary Greek as well as modern colloquial Greek—should be spelt according to the present Athenian pronunciation, simply on the score of the greater convenience of such a plan to the few foreigners resident in the Greek ports? But it is thus that our Japanese phonetists ask us to act: in order to facilitate the reading of some few names of places, steamers and such like to English persons unacquainted or imperfectly acquainted with the Japanese language, we are to commit the anachronism of transliterating the traditional standard tongue, which is centuries old, according to the modern pronunciation of Yedo, which may be different a hundred years hence from what it is to-day; for pronunciation is a thing that is of its nature fluctuating, and a system of writing which follows it therefore of necessity unstable. Referring to Mr. Dickins's animadversion on his (Mr. Chamberlain's) distinction of two tongues classed under the one denomination of "Japanese," he could only reässert that, quite apart from the influence of Chinese words, the native language had in the course of centuries suffered such modifications that the older written and the younger spoken form differed as much from each other as Latin and Italian. The grammatical terminations were different, and even such common words as "to be," "I" and "you" were different. The comparison drawn between usual English and the stilted English that flowed from Johnson's pen was, therefore, misleading because insufficient. The disagreement between the advocates of phonetic and those of "orthographic" spelling was doubtless one which it were vain ever to hope to see changed into unanimity, as the first principles which each party takes as the basis of its opinions are diametrically opposed. But if the final vote of public opinion were to be given against the "orthographists," Mr. Chamberlain could not but hope that Dr. Hepburn's system would be, of the many competing phonetic systems, the one in favour of which the community would decide. Dr. Hepburn's system has some strange inconsistencies (*e. g.* the treatment of the letters 'ch' and 'j,') but at least it *aims* at being a true representation of the sounds that meet the ear. In Mr. Dickins's paper, on the other hand, we are no sooner enlightened by the phonetic rule than we stumble across the historic exceptions, and after being told *shiyau* and *shiyou* are altogether irrationally divergent representatives of the one sound *shô*, we have perforce to accommodate ourselves to *omou* and *omowu* as written equivalents of the one sound *omô*. No; logic compels us to adopt one consistent system, be it a strictly phonetic one, or else the "orthographical" one which is advocated by Mr.

Satow and his supporters, and which, less ambitious than the proposal now before the meeting, does not undertake to make a revolution in the speech of the Empire, but only sets to itself the humbler, but more practicable, task of representing in Roman letters the Japanese written language such as it was and is.

Mr. Bramsen said that, however much he should have liked to make a few remarks on Mr. Dickins's paper, and on the subject of a uniform and general system of transliteration, he was sorry to say he had come to the conclusion that any labors in this direction would, at present, be entirely thrown away. In his opinion it was hopeless to think of any such universal system, when we have evidence before us that this learned society, which must be supposed to consist of those who would take most interest in such matters, has not yet brought itself to adopt a fixed system of transliteration in its transactions. Not only do the various contributors follow different systems of writing, but in some papers no method at all is followed, and the same words on one page are written according to some phonetic system, and on the next in conformity with the historical (orthographic) system. The speaker thought it was high time that something was done to ameliorate this deplorable state of affairs, and he therefore gave notice that he intended at the next meeting to make the following proposal: "That three members of the Council and three ordinary members of the Society be chosen by this meeting to form a committee whose duty it shall be to consider what measures can be taken to ensure some kind of uniformity in the transliteration of Japanese words in the Society's Transactions; and that the result of their deliberations, in the form of some rule, be placed before a General Meeting for adoption."

Mr. Dallas said that, alike with Mr. Dickins, he felt very great diffidence in putting forth an opinion in opposition to that held by scholars of such eminence as Mr. Satow and Mr. Chamberlain, but it appeared to him that they allowed it to be inferred that the orthodox mode of expressing Japanese words in Kana,—which forms the basis of their Kana-transliteration system,—is generally known to the people of Japan to somewhat the same extent as the accepted spelling of English is known to the population of England. His own experience was that the contrary was the case, and that only an extremely small percentage of the well-educated class had any acquaintance with what Mr. Chamberlain had well termed the "historical" mode of writing in Kana. Some years ago, when preparing a paper for this Society during a residence in the interior, where the local dialect very greatly mauled the pronunciation, his only mode of getting at the pronunciation accepted in Tôkiyô or Kiyôto was to ascertain how a character was expressed in Kana; and he was supprised to find that out of a class of some twenty young men of from eighteen to five and twenty years of age, most of whom were tolerably good Chinese scholars, only two seemed to be at all certain of the mode of spelling, and even these had constantly to refer to the dictionary. He quite agreed with Mr. Chamberlain that in any attempt to romanize Japanese the point to be kept in view was its practical utility to the Japanese rather than

the convenience of foreigners unacquainted with the language, but he thought that it should be made useful to the millions, whose intercourse is restricted by the extreme difficulty of their present method of writing, rather than to the limited number of highly educated men who have so thoroughly mastered the present system as to be able to express themselves in it with facility. Few errors are more common among foreigners than that of supposing that the majority of Japanese are able to readily read and write. It must surely be in the every-day experience of those members of the Society, who are not themselves independent of such aid, that, if they ask an average Japanese to read a letter for them, he does not read it as it is written, but merely renders the sense of it in his own words, and if pressed for the actual words of the writer, he will have to confess that he cannot give them. While the written and spoken languages differ as much as they do, it is no paradox, but a simple fact, to say that the ordinary Japanese cannot write what he speaks, and cannot read what he writes! The great advantage of romanization would be that it would allow the spoken language to be expressed on paper, and thus bring letter-writing within the reach of millions of the population who now never attempt it. A financier might safely predict that were romanization of Japanese to be generally introduced into the lower grade schools throughout the country, it would in a few years produce a very material increase in the revenue of the Post Office. In discussing, then, the merits of a Phonetic or Kana transliteration, it must be borne in mind that either system would be equally new to the people at large, and Mr. Dickins's point cannot be too strongly insisted on, that the question for the Japanese is not one of reformation but one of creation. If this be granted, and overwhelming evidence of its truth is within reach of every resident in Japan, the advantages that Mr. Dickins has so ably urged of a phonetic, over any other system, historical or etymological, can hardly be gainsaid. He (the speaker) would not occupy the time of the meeting by entering into those minor details, in respect of which he would like to suggest modifications to Mr. Dickins's scheme, as such points would be more conveniently discussed before the committee contemplated by the motion of which Mr. Bramsen had just given notice.

Mr. Bramsen said:—Although before coming to this meeting I had made up my mind not to join in any discussion, the temptation is too great, and I cannot help saying that I share in Mr. Dallas's opinion, that the Japanese are not well posted in the use of the Kana. I have made frequent experiments in this direction, and one of them seems to me to be very striking. I have a highly-educated and well-read friend, by name *Shôda*. I once asked him: how do you spell the first part of your name, Shiyau, Shiyou, Seu or Sefu? My friend answered: I write it thus:—at the same time putting down on the paper *one* Chinese character. But, I said, how do you write it in Kana? To which he replied: "*I do not know, and I do not care to know!*" And this was the very point on which the parallel drawn by Mr. Chamberlain with modern Greek did not hold good. The Greeks *do* write in their alphabet, and cannot write in any other way;

while the Japanese *do not* write in the Kana. The proposers of the new orthographical system thus actually require foreigners to do what the Japanese cannot do themselves.

Mr. Ewing remarked that it was quite possible that the changes in the pronunciation of a language to which Mr. Chamberlain referred were due to the fact that the language was not spelt phonetically, in which case the objection to phonetic spelling as requiring change from time to time would be invalid. It was quite true, as the President had observed, that no phonetic system could hope to represent all the minute varieties of sound present in a language. Each symbol must represent a group of very closely allied sounds rather than a single definite sound, and within this range variation might occur. But once a language was spelt phonetically, we should expect the subsequent variations of pronunciation to be confined within those limits which determined the actual range of phonetic value possessed by any one symbol when the spelling was first fixed.

NOTES ON THE PORCELAIN INDUSTRY OF JAPAN.

By R. W. Atkinson, B. Sc. (Lond.)

[*Read February 10, 1880.*]

It was my intention to have made an extended series of analyses of the clays used in the principal centres of the porcelain manufacture in this country, but other work has so seriously interfered with this investigation that the results hitherto obtained are merely fragmentary, and as there is no probability of my being able to continue the examination of this subject, I have thought it better to publish such analyses as have already been made, in the hope that they may be found of some use to those who have time and opportunity to continue the investigation. Most of the analyses were made by my assistants, and by the students of the third and fourth years, in the laboratory of the University of Tôkiyô. Some were made by myself, and I have also, in other cases, confirmed the results obtained by others.

A year or two ago Professor H. Wurtz published a report upon the composition of the porcelain clays from Arita, which were exhibited in the Japanese section of the Philadelphia Exhibition, and as this report is not very accessible, I have thought it of sufficient interest to add the analyses obtained by him, especially as they supplement those obtained here.

It is a matter of some doubt whether there is a body of one definite chemical composition existing in all porcelain clays. Messrs. Johnson and Blake (Am. J. Sc.-Art. s. 2, xliii. 351) have established the composition of a mineral which they found in many kinds of porcelain clay, and have represented it by the formula

$$Al_2O_3 . 2 Si O_2 + 2 H_2 O,$$

which would correspond to 46.33 per cent of silica, 39.77 per cent of

alumina, and 13.9 per cent of water. To the presence of this mineral in a state of minute subdivision they attribute the plasticity of clays. Dr. Percy, in the last edition of his work on "Metallurgy," Vol. I., p. 94, gives a similar composition to a white, soapy substance obtained from Anglesea, and regards the following conclusions as established:—

I.—Crystallized kaolinite is a definite compound.

II.—Many kaolins and other clays are identical with crystallized kaolinite in composition.

III.—Crystallized kaolinite exists in clays which vary considerably in external characters, and occur under different geological conditions, as well as in localities remote from one another, e.g., Europe and America.

IV.—It is demonstrable that many clays consist of kaolinite intermixed with free silica and other matter.

The result of Prof. Wurtz's analyses was to show that out of 8 specimens of the material used at Arita, one only, that from Kudaru-yama, contained less than 74.5 per cent of silica, and he therefore drew the startling conclusion that the porcelain of Japan was not prepared from porcelain clay at all. His words are:—

"From these analyses it will be seen that the egg-shell porcelain ware is made without kaolin, being compounded, as to its body, solely of petuntze-like, or petro-siliceous minerals. The Chinese proverb that 'while the petuntze constitutes the flesh of porcelain, kaolin must form its bones,' is, therefore, altogether inapplicable."

Petuntze is usually regarded as a felspathic rock, but what the Chinese mean by the term is said by Sir Henry de la Beche (Catalogue of Specimens of British Pottery and Porcelain in the Museum of the Royal School of Mines, p. 9) to be involved in some difficulty. He says: "*Petun* signifies a white paste, and the suffix *tse* is merely a diminutive applied to the material when made into the usual form of small cakes or bricks. It appears, indeed, that several substances used in the manufacture of porcelain, prepared in the form of white tablets, pass under the common name of petuntze; but by D'Entrecolles the name was restricted to the fusible ingredient of the paste, and, therefore, has generally been considered to denote a substance resembling our Cornish China stone, which is an aggregate of felspar, usually more or less

decomposed, and quartz, commonly associated with a talcose mineral; in fact a disintegrated granitic rock resembling the *pegmatite* of certain authors."

According to Wurtz, then, the egg-shell porcelain is formed from this decomposed felspathic rock alone, without admixture, as is usual in other places, with any kaolin. Results agreeing generally with these are given by Gümbel (Dingl. Polyt. J. ccxxvii. 500-502), who examined specimens of clay from Arita, and compared the results with the analysis of egg-shell porcelain made by Malaguti at Sèvres. He examined 6 specimens, only one of which was earthy, and agreed almost exactly with the analysis given by Wurtz of the Kudaru-yama clay. His conclusion is, however, that the egg-shell porcelain could be produced by mixing 2 parts of the stone with 1 part of the earth.

These results are of some importance, but it remains to be seen whether the conclusions are borne out by the examination of a large number of specimens from other districts. In the analyses given in this note of clays from various porcelain districts, several will be found having a low percentage of silica and a correspondingly high one of alumina. The specimen used for the body of the ware from Mino is as high as any of the Arita clays, whilst the Banko clays occupy an intermediate position between the petro-siliceous minerals and kaolin. The clays obtained from Owari, Kôfu and Shigaraki contain from 54 to 59 per cent of silica, and 26 to 32 per cent of alumina, proportions which bring them nearer to the true clays. Unfortunately, only one of the kinds of clay used in the manufacture of the Kiyomidzu ware was analyzed, although 5 kinds are there used. For the body of the ware, two kinds obtained near Kiyôto are mixed with one from Shigaraki, in Ômi, the composition of which is given.

In the preparation of the Awata ware three kinds of clay are mixed in equal proportions to form the body of the ware, one from Kiyôto and two from Ômi. The two latter approach kaolin in composition, whilst the former is a petuntze-like mineral. The Satsuma clays were given to me by Mr. Satow, and were obtained by him at the time of his visit described in his paper on "The Korean Potters of Satsuma." The first one, marked "Nara ash," is evidently only carbonate of lime, although from the name one might expect a different composition. Two

of the remaining clays have a high percentage of silica, amounting to 78 and 77 per cent; the others vary from 51.79 to 60.72 per cent. No. 6 is frequently described as "Kaseda sand," but from the amount of alumina, and from the large amount of alkalies it contains, it seems to be mixed with a good deal of undecomposed felspar.

From the above analyses, fragmentary as they are, I think it will be seen that the conclusions of Prof. Wurtz cannot be extended to all Japanese porcelain. Further information, however, is much needed, and I trust that the labours of the members of the recently established geological survey of Japan may lead to results of great importance.

I have thought it useful to append a table giving the composition of the various ingredients used in the preparation of the colour employed to decorated the porcelain, which are also the same as are used for the production of cloisonné enamel (*shippô yaki*).

As a contribution to the history of pottery in this country, I venture to add a translation of an inscription which appears on a porcelain memorial stone erected at Seto to Shunkei, the Father of Pottery, which was given to me when on a visit.

INSCRIPTION ON THE TABLET ERECTED IN HONOUR OF SHUNKEI, THE "FATHER OF POTTERY."

The "Father of Pottery" belonged to the Fujiwara family, and was named Kagemasa, though usually known as Katô Shirozayemon. His artist-name was Shunkei, written in two different manners, and the epithet of "Father of Pottery" was given to him after his death. He was descended from Tachibana Tomosada, an inhabitant of Michikage village in the township of Morowa, province of Yamato. Tomosada begot Motoyasu, and Motoyasu begot the "Father of Pottery." Motoyasu, for some offence or other, was banished to Matsutô in Bizen. His mother was the daughter of Michikage, an inhabitant of Fukakusa in Yamashiro, who belonged to the Taira family. The "Father of Pottery," while still a child, was fond of kneading clay and making earthenware vessels, but always regretted that his skill was inferior to that of foreign countries (*i.e.*, China), and he formed the intention of going abroad to study. When he grew up he entered the service of the Dainagon (councillor) Koga Michichika, and was created Shodaibu with

the 5th rank. He eventually accompanied Michichika's second son, the priest Dôgen, to China, in the 16th year of the period Katei (1223). He remained there studying during six years, and on his return landed (lit. furled sails) at Kawajiri in Higo. Whilst on board he made three small pots with earth which he had brought with him, which he presented to Hôjô Tokiyori, the Shôgun's lieutenant, and to Dôgen. These were afterward handed down in Japan as curious treasures. The "Father of Pottery" was twenty-six years old when he returned, and at once paid a visit to his father in his place of exile, where he stopped awhile and made pots. He next visited his mother at Fukakusa, but after her death, which took place shortly afterwards, he made experiments in potting at Kiyôto and in the neighbouring provinces. He also made experiments in the two departments of Chita and Aichi in this province (*i.e.* Owari), but without success. At last he came to the village of Seto, in Yamada department in this province. Here he saw to his astonishment the earth called *Sobokai*. He said: "The situation faces the south, while the hills are high, the water clear, and the quality of the earth similar to what I brought back with me" (from China). So he commenced to work in this place, and during the rest of his life never moved elsewhere. Some say that the grandmother of the "Father of Pottery" found this good earth in the Amaike Cave (?) at Seto, and brought some of it home in the bosom of her dress, whence it was called *Sobokai* (grandmother's bosom). According to another account the *Sobokai* was discovered by the "Father of Pottery" in a dream, after he had prayed to the god Fukagawa of the temple in Seto village. Seto village formerly belonged to Yamada department, but now forms part of Kasugai department, and was probably in ancient times a good place for potting. We learn from the Ni-hon-kô-ki, Yen-gi-shiki, Wa-miyô-shô, Chô-ya Gun-sai and other books that in those periods the Court ordered pottery from this province, and always from that department. The subsequent success of the "Father of Pottery" was facilitated by the knowledge he possessed of what had been done before his time. The site where the house of the "Father of Pottery" stood is called Nakajima, and lies among the rice fields on the eastern side of the Fukagawa temple in the village of Seto. A single cryptomeria planted there marks the spot. North of this again is a place

called Yen-chô-An. It is said that the "Father of Pottery" in his later years entrusted the family affairs to his son. The "Father of Pottery" fixed upon this place, and his wife upon the family plot of land, to build houses to end their days in. The books afford no information as to the date of the death of the "Father of Pottery." His tomb is called the "Mound of the Fifth Rank." On the left of the village there is an old kiln of his called Mashiro. Nothing actually made or handled by him remains there; but it is said that a pair of lions used as weights for the blind at the village temple were made by his hand, and one of those is lost. Those inhabitants of the village who have *tô* in their surnames are his descendants. They have built a temple to his memory called Suyehiko no yashiro (temple of the potter-hero), and also Kama no Kami (the kiln god). There are two regular festivals on the 19th days of the 3rd and 8th months. In the 3rd month the dance of the wooden lion's mask is exhibited, in the 8th there are horse-races. His son Tô-go-rô, his grandson U-shi-rô and their descendants continued to exercise his profession. It was said of old "the merits of the nine services should all be sung," and were spoken of as "the nine songs". The "Father of Pottery" had one of those merits, and there is no reason why we should not celebrate his merits in song, in order to encourage others and preserve the art from decay. I therefore sing as follows.[1]

Then follows a copy of verses, the translation of which has not been attempted, as it would require an excessive amount of notes by way of elucidation.

[1] This is a reference to the following passage from the Shoo King (Legge's Edition, vol. i., page 55). "Virtue is seen in the goodness of the government, and the government is tested by its nourishing of the people. There are water, fire, metal, wood, earth and grain—these must be duly regulated: there are the rectification of *the people's* virtue, the conveniences of life, and the securing abundant means of sustentation: these must be harmoniously attended to. When the nine services *thus indicated* have been orderly accomplished, let that accomplishment be celebrated by songs. Caution the people with gentle words, correct them with the majesty of *law;* stimulate them with the songs on those nine subjects." The application of earth to the use of man by means of the potter's art is one of the "nine services" which were to be celebrated with songs, and the author of the inscription proceeds to do this in the Chinese poem which follows.

ARITA CLAYS, ANALYZED BY PROFESSOR H. WURTZ.

	Tsuji-tsuchi	Shiro-tsuchi	Sakaime-tsuchi	Uwa-kusuri	Indo tsuchi (hard grains)	Kudaru-yama	Seiji-tsuchi	Shira-kawa	Egg-shell porcelain	Thick body
Combined water	2.518	3.330	3.320	3.715	1.155	7.607	1.297	.910	....	....
Silica	78.181	77.685	78.073	78.210	82.292	49.931	77.844	79.130	78.763	74.545
Alumina	15.699	15.189	13.993	14.407	11.981	38.738	13.510	16.44	17.847	19.315
Ferrous oxide	.663	.895	1.020	1.408	.139	1.582	1.530	1.28	.638	.916
Lime	a.	.146	.186	.097	.287	a.	a.	a.	.213	.106
Magnesia	.099	.096	.229	a.	.064	.206	.307	.24	.029	.176
Soda	1.744	1.469	1.722	1.385	2.981	1.445	3.993	1.49	1.975	2.832
Potash	.551	.508	.961	.142	.506	.440			.203	.566
Manganous oxide	tr.	.013	.031	....	.072	....	....	.15	....	....
Carbonic acid	....	....	....	....	....	....	....	....	....	....
Sulphur	....	tr.	....	tr.	....	....	....	....	....	....
	99.430	99.331	99.545	99.464	99.477	99.949	98.481	99.64	99.668	99.556
Specific gravity at 0°C	2.6962	....	2.6041	....	2.489	2.627	....	....	2.3367	2.3079

PERCENTAGE COMPOSITION OF THE MATERIALS USED IN PREPARING THE COLOURS FOR DECORATING PORCELAIN.

	Hinowoka Seki	Bengara	Tô-no-tsuchi	Shiratama	Koise	Usu-se	Konjô	Murasaki .....
Water	.23	2.31	2.00	....	....	....	....	....
Carbonic acid	....	....	11.60	....	....	....	....	....
Silica	98.89	7.51	....	49.05	47.84	53.65	69.67	50.52
Oxide of lead	....	....	86.42	36.91	31.19	29.63	....	32.05
Oxide of copper	....	....	....	....	8.43	2.50	....	....
Oxide of iron	....	88.57	....	} .50	.52	.38	4.50	.45
Oxide of aluminium	....	1.49	....					
Oxide of cobalt	....	....	....	....	....	....	7.06	....
Oxide of manganese	....	....	....	....	....	....	....	3.93
Lime	....	....	....	.62	.63	.96	....	.62
Potassa	....	....	....	11.85	11.19	11.04	18.32	12.22
Soda.....	....	....	....	.65	.56	1.62	.61	.18

CLAYS FROM VARIOUS LOCALITIES.

	CLAYS FROM TAKAYAMA IN MINO.			BANKO CLAYS		Owari clay used at Mukojima	Kôfu prepared clay.	Kiyoko, Kiyomidzu from Shigaraki ..
	Body clay ..	Biscuit	Glazing clay.	White	Red			
Moisture	1.22	.56	.93	4.13	....	} 6.30	} 8.09	3.16
Combined water.....	2.83	.63	1.06	6.20	....			7.00
Silica	81.86	71.99	70.84	64.65	60.17	54.65	59.09	56.87
Alumina	11.84	15.67	17.75	22.56	23.28	32.35	26.11	28.56
Ferric oxide	.06	2.01	.46	1.46	5.08	....	.53	.98
Lime	.59	1.22	.98	.22	1.20	.90	2.12	.69
Magnesia.....	.26	.65	.33	....	....	.37	.45	.47
Potash.....	.32	4.20	3.89	.03	....	3.27	.47	2.08
Soda.....	1.01	2.99	3.95	.30	....	2.22	....	.06
Carbonic acid.....	....	....	....	....	....	....	....	....

SATSUMA CLAYS.

	Nara ash	Matsuga kubo	Name unknown	Kirishima	Kaseda	Neba	Bara
Moisture	2.82	1.67	.57	.70	.46	1.93	1.51
Combined water	.51	11.97	2.33	10.85	1.18	11.74	7.09
Silica	8.405	60.72	73.13	59.42	77.15	51.79	60.30
Alumina	4.785	22.68	20.16	27.90	13.50	30.91	27.62
Ferric oxide	3.300	....	....	....	.94	1.13	....
Lime	42.765	.48	.56	.13	.83	.49	1.02
Magnesia	2.415	.65	.70	.26	.62	1.17	.46
Potash	.74	1.02	1.32	.61	3.34	.65	.70
Soda	.215	.82	1.45	1.01	1.85	.34	1.19
Carbonic acid	34.145	....	....	....	....	....	....
	100.100	100.01	100.25	100.88	99.84	100.15	99.89

PROPORTIONS OF THE INGREDIENTS IN THE VARIOUS COLOURS USED IN DECORATING PORCELAIN AND "SHIPPÔ-YAKI" (CLOISONNÉ ENAMELS).

	White	Black	Red	Yellow	Light green	Dark green	Blue	Purple	Hiwa iro
Shira tama	50	50	50	50	50	50	50	50	50
Tô-no-tsuchi	7	7	7	7	7	7	7	7	10
Hino-woka Seki	7	7	7	7	7	7	7	7	10
Tôgunjô (ultramarine)	..	7	..	....	..	..	..	..	..
Bengara	..	..	7	....	..	..	..	..	..
Ususe	..	..	..	....	7	..	..	..	..
Koise	..	..	..	....	..	7	..	..	50
Tôshirome[2]	..	..	..	4 or 5	..	..	..	..	1½
Konjô	..	..	..	....	..	..	7	..	..
Murasaki				....	..	..	..	7	..

[2] *Tôshirome* is metallic antimony

AWATA WARE.—KIYÔTO.

	Kiyôto clay.....	Ômi clay No. 1	Ômi clay No. 2	Glazing clay from Matsumoto.....
Moisture	1.58	4.13	9.18	10.28
Combined water	5.02	7.55		....
Silica	71.40	52.13	56.03	50.54
Alumina	19.42	27.98	30.82	15.14
Ferric oxide	.38	1.85	.82	.86
Lime	.38	.90	.84	10.18
Magnesia	.20	.42	.40	.78
Potash	1.00	....	.64	....
Soda	.91	3.09	1.55	....
Carbonic acid	....	....	....	5.61

A SHORT MEMOIR FROM THE SEVENTEENTH CENTURY.

("MISTRESS AÑ'S NARRATIVE.")

By Basil Hall Chamberlain.

[*Read March 9th, 1880.*]

[The following is a translation from a small volume containing the memoirs of two women named respectively Añ and Kikŭ, which came into the present writer's hands at a time when he was preparing a paper for this Society on the Mediæval Colloquial Dialect of the Comedies.[1] Dating, as the document does, but a couple of centuries back, it was too recent to be made use of for the above-mentioned philological purpose; but one of the stories, at least, seems worthy of perusal for its own sake, notwithstanding its sketchiness and absence of all pretensions to literary skill. For the student of Japanese, who has flung down in disgust the dry, colourless, and withal stilted productions which in this country are dignified with the name of history, seems to see light again when the gossipping pen of some old beldame like Mistress Añ brings before his eyes the actualities of the life of those old and by no means pleasant days, and shows him that the people, who in the pages of the "Guwai-shi" or the "Mikaha Fuu-do-ki" would be made to mouth fine sentiments in antithetical Chinese phrases, were really live men and women like those we now meet and speak to in the Yedo streets. Care has been taken to reproduce the original with as strict fidelity as the divergence between the English and Japanese idioms will allow, and, at the close, a page of the Japanese text has been printed for the benefit of those

[1] See "Transactions of the Asiatic Society of Japan," vol. vi., pt. 3.

who may be interested in Japanese dialects. Truly, in speech as in other matters, the improvement during the last two and a half centuries of peace has been wonderful.]

The children having gathered round Mistress Añ with cries of "Oh! do tell us about the olden times," she commenced as follows:—

"My father, Yamada Kiyoreki, was a retainer of my lord Ishida, Assistant Vice-President of the Board of Rites, and lived at Hikone in the province of Afumi; and afterwards, when my lord had raised the standard of revolt, was shut up in the castle of Ohogaki in the province of Mino.[2] He and all the rest of us,—there we were shut up together; and a very curious circumstance I remember in connection with it. Every night just about twelve o'clock there came the voices of, I should say, some thirty people, men and women. Who they were, we knew not; but we could hear them shouting out, 'General Tanaka! hoy! General Tanaka! ugh! ugh!'—the same, night after night. Gracious me! how it made you shudder! After that, His Highness Iheyasu sent a large force to lay siege to the castle, and we had fighting day and night, and Tanaka was the name of the besieging general.

"When our cannon[3] were to be fired, notice was sent round to all within the precincts of the castle, the reason being that the report of the cannon terrified every one by shaking the turrets, and seeming almost to make the ground split in two, so that the less courageous,—such as the women,—would faint right off; and for that reason notice was given

[2] The "revolt" here alluded to is the war which ensued on the death of Hideyoshi in A.D. 1598. Practically master of Japan, Hideyoshi left behind him but a son six years old to take his place,—a place coveted by the most ambitious of his generals, Iheyasu. The consequence was a war between the latter and the partisans of the Hideyoshi succession, in which these were defeated and destroyed. After the battle of Seki-ga-hara, in the autumn of 1600, which decided the fate of Japan for 258 years by giving it over for that period to the sway of Iheyasu and his successors the Tokugaha *Shiyauguñs*, the castle of Ohogaki was taken, my lord Ishida captured by Tanaka Yoshimasa, the enemy's general mentioned in the text, and decapitated by order of the victor. Writing under the administration of the latter's descendants, all wars waged against him were of course styled "rebellions," even by those whose friends had been engaged on the losing side.

[3] Fire-arms had been introduced into the country in the middle of the sixteenth century.

beforehand. So when notice had been given and the flash had come, you felt as if waiting for a clap of thunder to follow; and in the early times we all felt as if we should die, and as if there were nothing but fear and horror left. But by and by we saw it was all nothing, and we and mother and the other women and girls took to busying ourselves casting bullets in the look-out turret. And then, too, our soldiers would bring to us in the turret the heads they had taken, and make us label them for reference. They would also often ask us to blacken the teeth with powder, the reason being, you see, that in old days 'tooth-powder heads' were those of men of rank, and therefore more prized, so that a soldier would bring you a plain head and ask you to do him the good turn of giving the teeth a rub of powder. We weren't a bit afraid of the heads, and used to sleep in the midst of the nasty smell of blood that came from them.[1]

"One day, after a cannonade from the besiegers which threatened a speedy end to the castle's existence and threw all the people within the castle gates into confusion, one of our attendants came with the news that the enemy had disappeared without leaving a trace behind them: 'No need for alarm,' said he; 'quiet yourselves, quiet yourselves!' But the words were scarcely out of his mouth when a cannon-ball came and struck my younger brother, a boy of fourteen, knocking him down and killing him on the spot. Oh! it was a cruel sight. Indeed it was!

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[1] The tooth-powder here referred to is the *o-haguro* still used by married women for the purpose of blacking their teeth. In the Middle Ages and down to the time of the revolution, the only persons of the male sex who were permitted by custom to follow the practice were the members of the Imperial family and the court nobles, and it is therefore curious to find this reference to it. At the same time, the ignorance of the soldiery, mixed with a vague prejudice in favour of blackened teeth as significative of high birth, must be borne in mind; and at least one mediæval instance of a warrior blacking his teeth may be quoted from the "Sei-suwi-ki," where we read that the youthful Atsumori was found by his slayer, Kumagaya Nawozane, to have his face powdered and his teeth blackened. After a battle, all the heads that had been won were taken to the commanding general for inspection, and rewards were distributed according to the rank of the persons to whom they had belonged. Afterwards the heads of the rank and file were interred, while those of men of higher birth were returned to their families.

"That same day there came for father to the gate under his charge a letter tied to an arrow, which said: 'As you once had the honour to be my lord Iheyasu's writing-master, you shall be spared if desirous of making your escape from the castle. Fly in whatever direction you please. You shall not be molested by the way. The troops have orders to that effect.' Well,[5] the assault being expected in the middle of the following day, everybody's spirits had forsaken them, and we, too, were looking forward with trembling to the next day as to that of our final end,[6] when father stole up into the look-out turret, and whispered to us to come this way. So he led out mother and us, and, making us climb a ladder placed against the wall on the northern rampart, let us down on the other side by means of a rope, after which we crossed the moat in a tub. Our party consisted of my two parents, myself and four attendants, our other retainers having been left behind. We were about half a mile from the castle, making in a northerly direction, when mother was suddenly seized with the pains of childbirth, and was delivered of a little girl. One of the retainers took and washed it in water from a rice-field, and then picked it up and wrapped it in his skirt, while mother was taken by father on his back, and we fled in the direction of the moor of Awono. Oh! what a frightful time it was! Yes, this was what the olden times were like. Mercy on us! mercy on us."

Then the children asked her again to tell them about Hikone, and she said:[7]

"My father had an estate worth three hundred *koku*[8] of rice per annum; but at that time there was so much fighting that everything was difficult to get. Of course each person had something laid by in case of necessity, but water broth[9] was our usual food morning and

[5] From here to the end of the paragraph is the passage of which the original text is given at the end of this paper.

[6] On such occasions, many even of the women preferred death at their own hands to capture by the enemy.

[7] The order of time is here reversed, and the old lady is referring to a period previous to the disastrous war of A. D: 1600.

[8] One *koku*=5.13 bushels.

[9] *Zau-suwi* 雑水, lit. "mixed water," a thin infusion of such greens, etc., as might have remained over from a previous meal.

evening. Sometimes my older brother would go out on the mountains with his gun. On those mornings rice and greens would be cooked, for him to take the remains with him to eat in the middle of the day. On those days rice and greens would be given to us, too, and we used to eat them. So we were always trying to persuade my brother; and if he did promise to go out shooting, we were quite beside ourselves with joy. Clothes, too, we were so destitute of that when I was thirteen years old, I had nothing but one thin blue[10] hand-made frock[11] and, as I wore that one frock till I was seventeen, my shins showed out below in the most horrible manner. Oh! how I used to wish for a frock that would at least hide my shins! Such were the inconveniences of every kind to which one was put in the olden times. No one ever dreamt, either, of such a thing as eating rice in the middle of the day, neither did night time bring its supper with it. So what shall I say of the young folks nowadays, and the fancies they take and the money they spend on dress, and their whims about all sorts of delicacies in the matter of food!"

Thus would she reprove them by reference to the Hikone days, so that they ended by nicknaming her "Granny Hikone." This is the origin of the slang expression "Hikone," used to designate the lessons for the present day drawn by aged people from the doings of former times,—an expression which is, therefore, not understood by the natives of other provinces, as it is only a local phrase of ours.

[A colophon, which we may follow a second colophon dated 1730[12] in ascribing to a nephew of Mistress Añ, who is mentioned therein under the name of Yamada Kisuke, tells us how the little memoir which here ends came to be written down. After mentioning that the family retired to the province of Tosa, and that Mistress Añ died during the period styled Kuwañ-buñ (A. D. 1661-1673) at over eighty years of age, the writer goes on to say:

"At that time I, who was then eight or nine years old, had often

[10] This seems, by reference to a work on dress entitled "Soku-tai Shiyau-zoku Seu" (束帶裝束抄), to be the meaning intended to be conveyed by the original word *hana-zome*.

[11] *Kata-bira*.

[12] The printed edition only appeared in 1837.

heard her relate the foregoing narrative. Ah! how truly has it been said that 'time flies like an arrow.' In the period styled Shiyau-toku (A. D. 1711-1716), when I gathered my own grandchildren round me, and told them the story, and drew from the example of bygone days lessons against our modern extravagance, the sly rogues turned up their noses, saying: 'Well, grandpapa, if Mistress Aĩ was *Granny* Hikone, you are old *Daddy* Hikone! What *are* you preaching about? Each time must have its own customs.' At which observations I of course felt hurt, but then remembered the text: 'Respect your juniors.'[13] Yes, our juniors. What will they be like, I wonder? My grandchildren, I suppose, will have grandchildren to find fault with *them*. So I have just put this down as best I could, and, for the rest, I have nothing more to say than—my prayers."]

DISCUSSION.

The President, in thanking Mr. Chamberlain for his interesting communication, said that it was evident that no small part of the charm of the paper was due to the felicity of Mr. Chamberlain's translation.

Mr. Blanchet asked how the practice of blacking the teeth (referred to in the paper) originated.

Mr. Chamberlain said he did not remember with precision the reasons given for the practice, but that details were to be found in Mitford's "Tales of old Japan."

Dr. Faulds observed:—The fact brought out by Mr. Chamberlain that the custom of blacking teeth, now apparently confined to married women in Japan, was once common to men of the higher ranks also, is quite interesting. There seems to be an exceedingly common tendency, not yet specially studied, in women to manifest such "survivals" of vanishing customs. Many familiar examples readily occur to one, such as the custom of wearing ear-rings, necklaces, bracelets, flowing robes, etc., of western ladies. A more striking example is the long hair parted in the middle which is still found amongst the males of many primitive peoples, such as some of the races of North America, the Lepchas in Asia, etc., but which exists only amongst women in more advanced races. That the blacking of teeth in Japan was as purely ornamental in its purport as the blackening of our own boots is rendered somewhat probable, I think, by the wide prevalence of the custom of teeth-ornamenting in other lands. The people of Borneo bore their teeth, and insert brass pins into them. Various tribes

[13] "Confucian Analects," bk. ix., chap. 22.

chip, grind, or file them down, however perfect or regular they may be, into shapes differing according to the customs of each tribe. It is often said in Japan that married women now blacken their teeth to preserve them, but in Sumatra the hard protecting enamel is first removed, simply that the rough surface may better absorb the black colouring matter. In such a case the process can only be injurious to the teeth, and the custom can only be explained as one of ornamentation.

The President said he had always been under the impression that the Japanese women blacked their teeth and shaved their eyebrows after marriage, as a sign that they no longer wished to make themselves attractive to the other sex.

Curtis.

SUGGESTIONS FOR A JAPANESE RENDERING OF THE PSALMS.

By Basil Hall Chamberlain.

[*Read April 13, 1880.*]

As the usage, if not the positive rules, of the Asiatic Society exclude all proselytizing efforts from the scope of its labours, it may be well, in explanation of the title of this paper, to state the object with which it has been written, in order that neither to the Society nor to the author need be attributed the design of encroaching on a field which the various missionary societies rightfully hold as their own. It is, of course, mainly to the missionaries that we look for translations of the Bible into foreign tongues; and by them a portion of the peculiarly arduous task of making such translations into the language of Japan has already been accomplished. But the Bible may be considered from many points of view apart from the strictly religious; and most foreigners and many educated Japanese will be ready to admit that, as the European student of Chinese or Japanese should first betake himself to the Confucian and Mencian books if he does not wish to be stopped at every stage of his later enquiries, so must every Japanese desirous of obtaining any adequate notion of the intellectual soil of Europe, and more especially of England and the other English-speaking countries, begin by finding out what has been written in the Hebrew Scriptures. So great has been their influence that, to say nothing of thoughts and feelings, they have moulded the very language,—the familiarity of all classes with them having introduced the use of innumerable phrases, similes and allusions, whose recurrence will render almost every book and conversation more or less a mystery to him who is a stranger to the Old and New Testaments. It must, therefore, apart from all prosely-

tism, be the earnest desire of every one who interests himself in the progress, and, so to speak, the Europeanization of this country, that its inhabitants should possess adequate translations of those books, and no place should be better fitted than the Hall of the Asiatic Society for a calm discussion of the aptest method to be pursued in the making of such translations.

I say discussion; for discussion, unfortunately, is forced upon us here, where we have to deal with a language which has neither from its origin been cast in a Bible form like the tongues of Modern Europe, nor is yet a sheet of blank paper like the dialects of barbarous tribes. There are difficulties,—almost impossibilities,—on every side, and our choice lies between evils. I must, therefore, be excused if, instead of going straight to the point and simply laying before the Society the versions which I have attempted of a few of the Psalms (one of the books of the Bible of which no Japanese rendering has as yet been published), I enter into a somewhat lengthy consideration of the conditions which must determine the translator's work. It is only by fully appreciating these conditions that persons can be qualified to pronounce on the merits of any particular system.

It should, then, be kept in mind that the single word "Japanese" serves to designate three different languages having, indeed, a common groundwork and historical connection, but nevertheless far more distinct from each other in grammar and especially in vocabulary than many dialects which in Europe are classed as separate tongues. These are Classical Japanese, Sinico-Japanese and Colloquial Japanese. Of these, again, each has its minor subdivisions, as is but natural in the case of languages spoken or written over large tracts of space and time. In particular, it is necessary to distinguish in Classical Japanese between the Archaic Dialect and the Classical Dialect Proper. The Archaic Dialect is that in which are preserved to us the legends of the *Ko-zhi-ki*, the litanies of the *Norito* and the poems of the *Mañ-yefu-shifu*, all dating from or before the eighth century of our era. Its place might be compared to that of Homeric Greek.

In the Classical Dialect Proper was written during the tenth, eleventh, twelfth and thirteenth centuries the great mass of the standard literature of the country. It differs from the Archaic Dialect

chiefly in the dropping of old words and forms, in the systematizing of the grammar under certain inflexible rules, in its polish and its loss of strength. It is, as it were, the Attic speech of Japan.

For the next language in the enumeration,—Sinico-Japanese,—we have no parallel in Greece nor, indeed, in Europe;—not even in our English speech, modified though it be by the introduction of the French element. The Chinese words here drive the native vocabulary fairly out of the field, and, in so doing, cause profound changes in the grammar, destroying almost every vestige of the ancient forms. Most modern documents, newspaper articles, letters, etc., are composed in this style, which to a person conversant only with the other two would be completely unintelligible.

Lastly, Colloquial Japanese, which, to continue the comparison with Greek, might be called the Romaic of this country, is a hybrid dialect, the residue of what has gone before it. It has never been fixed, and is in the present day changing more and more under the influence of English and of new ideas.

The question now is: Which of these divergent kinds of Japanese is to be chosen as the medium for Biblical translations? The Colloquial Dialect is at once excluded by its vulgarity and its wants of any standard; and that this is not a personal prejudice, but a recognized truth, is shown by the fact that no writer, whether native layman or foreign missionary, has ever attempted to use it in any serious composition. Sinico-Japanese must be excluded for another reason,—that of useless difficulty unaccompanied by any counterbalancing advantage. Remains the Classical Language in its two branches. The aim of the translations hitherto made from Genesis and from the New Testament has been to adopt the Classical Dialect Proper; and its claims, as the medium generally accepted by the Japanese reading public, are undoubtedly superior to those of the two dialects previously mentioned. At the same time, we must not disguise to ourselves two facts: one, that it is impossible to make even an approximation to literalness without perpetually violating every rule of grammar and of style; and the other, that this dialect, always difficult of comprehension to the less educated classes, becomes well-nigh unintelligible to them when these rules are thus violated; that is to say, when exactitude is approached. To be

at once elegant, intelligible and exact is, therefore, out of the question. It is even out of the question to be at once exact and intelligible; and, for the present at least, the most practical plan would seem to be to print two renderings,—one a Classical paraphrase, which in the case of the poetical books should, if possible, be in a versified form in order the better to suit the native taste, the other a strictly literal version, which would receive its explanation from the paraphrase and, conversely, determine the precise sense of the latter. In the literal version, as need scarcely be stated, no attempt whatever should be made to conform to the usual rules of Japanese composition.[1]

With regard to the versified paraphrase here recommended for the poetical books, there unfortunately comes in a consideration drawn from the literary history of the country,—one which, though it might perhaps not prove insurmountable to a native of genius, seems to me to bar the way against all attempts by a foreigner at making his versions in the more generally comprehensible style of the Classical Dialect Proper, and to refer him to the Archaic Tongue as his vehicle of expression. This consideration is grounded on the style of poetry hitherto written in the Classical Dialect Proper. Consisting, as it does, almost entirely of what are termed *mizhika-uta*, i. e. "Short Stanzas" of but one-and-thirty syllables each, there is no such thing as an extended poetical phrase,—no breadth or sweep to be found in it, such as is indispensable to the rendering of any foreign poetry, even of the Psalms, although the sentences in the latter do not run to any great length. There is, therefore, no standard to imitate; and to write without a standard in a dead or conventional tongue is impossible,—in Japan more absolutely impossible than could be well imagined in the West, as the native taste requires of a modern writer that he shall be able to quote chapter and verse for every word, every phrase and every term that he may make use of. We are, therefore, driven back to the oldest form of the language,

[1] A considerable future in Japan would seem to be reserved for the so-called *chiyoku-yaku* or "literal translation" style, which is already in use in some of the schools, and is peculiarly adapted to the wants of the native mind. Its barbarism is amply compensated by its practical utility; for, as in the recognized case of Chinese, so in the case of English, it is but labour lost to attempt to confine the freer movements of the foreign vehicle of expression within the stiff and, at the same time, complicated rules of Japanese construction.

and here at last we find all the necessary conditions fulfilled. In the *Mañ-yefu-shifu* are hundreds of compositions, and in the *Ko-zhi-ki* not a few, of lengths nearly averaging that of most of the Psalms, by various poets on the most various subjects, and giving us a complete vocabulary and poetical frame-work,—a frame-work and a vocabulary which, although undoubtedly antiquated, have yet been adopted as the only efficient instrument their language has to offer by all the modern Japanese poets whose works are worthy of perusal.[2]

As already stated, there are grave objections to every possible method of translation. Difficulty of comprehension is the objection which, in conversation with private friends, has been made to the style of paraphrase here advocated. Difficulty and incomprehensibility are, however, two very different things. To an uneducated Japanese or to one who, although otherwise cultured, is a total stranger to all Jewish history and ideas, *any* version of the Psalms will probably be almost as mysterious as the original Hebrew text. Some previous knowledge and some *vivâ vòce* explanations must always be taken for granted; and with them, and with the mutual check of paraphrase and literal prose version, the Archaic poetical expressions, however perplexing to a foreigner, should offer no special difficulty to the native student.

For the sake of facilitating the perusal of the accompanying versified renderings by any member of this Society who may not have devoted special attention to the Archaic Dialect, I have explained the chief difficulties in English foot-notes, while there have also been added in Japanese a very small number of notes and headings which seemed indispensable to an appreciation by a native reader of the general signification of each Psalm. The Psalms selected are the 1st, 19th, 23rd, 100th, 113th, 114th, 115th, 123rd, 124th, 127th, 128th and 133rd. No claim to merit can be made for the actual versions here given, whether versified or literal; for, having been perforce moulded, not on the original, but on the English text, they are but the translations of translations. Such precautions as were feasible have been taken. The poetical renderings, most of which were originally made from the English Prayer-Book version, have all been revised by comparison with

[2] *e. g.* Mabuchi, Motowori, Chikage, Tachibana no Moribe, Takabatake Shikibu, Tachibana no Toseko.

de Wette's "Commentar ueber die Psalmen" and an English edition of Delitzsch's "Biblical Commentary on the Psalms," while the literal renderings scrupulously follow those given in the latter work. Still the dangers of double-filtered translation are too obvious to need insisting on; and when it is the case of a Semitic composition which is rendered first into an Aryan and thence into a Turanian tongue, we have the danger in its extremest form. A good knowledge of Hebrew, besides other special studies, is the indispensable prerequisite of a translator. All, therefore, that is here intended is, to indicate a method and illustrate it by a few examples.

SAÑ-BI NO UTA NO DAI ICHI. (Ps. 1.)

YOSHI-ASHI-BITO NO HATE NO TAGAFU WO YOMERU UTA:

Arachi-wo ga	Sakashira tohazu
Saga-mono ga	Ihe ni i-tatade
Utsutahe ni	Ama tsu Sumera no
Shiki-maseru	Oho mi koto-nori
Akarahiku	Hiru shi mo manebi
Nuba-tama no	Yo-narabe omofu
Sachihahi ya	Kaha-bi ni tatasu
Tsuga no ki no	Iya tsugi-tsugi ni
Ha ha shi mo	Toha ni kare sede
Mi ha shi mo	Musubanu aki naku
Uruhashiku	Nihohi-tsutsu aru ni
Yatsuko-ra ha	Kaku narazu koso
Aki-kaze no	I-fuki-chirasu
Momiji-ba to	Use ni use-kere
Kaku bakari	Ama tsu Sumera ga
Oho mi toga	Ye-sake-matsurade
Uma-bito no	Tomo ni ye-irade
Horobi-keñ	Yoki hito koso ha
Iyoyo sakayedo.	

1 & 2 *Arachi-wo* (荒男) and *Saga-mono* (惡者), "bad and violent men." *Ga* was originally used to denote the Genitive relation, while *no* constantly indicated what we should call the Nominative. In later times this usage was reversed, *wa ga*, "my," "our," alone retaining the ancient force of *ga*. *I* here and constantly Expletive. 3 *Ama tsu Sumera* (天帝 or 上帝; according to the Sinico-Jap. pronunciation *Teñ-Tei* or better *Shiyau-Tei*), lit. "Monarch of Heaven" or "Supreme Monarch," the nearest equivalent for the word "God." *Kami* (神), which some prefer, simply means "ancestral spirit," and has the additional disadvantage of being generally understood as a Plural. Alternating with *Ama tsu Sumera* for "God," *Oho-Kimi*, *Ama tsu Oho-Kimi*, *A ga Oho-Kimi*, etc., have been employed for "the Lord," "our Lord" in the versified rendering. In the prose version, the Hebrew term "Jehovah" has been retained for the latter. 4 *Shiki-maseru oho mi koto-nori*, "the decree which He has promulgated." The Honorific *masu*, now used indiscriminately, was anciently applied only to Divine and Imperial personages. 5 *Akarahiku*, pillow-word for *hiru*. *Manebi*, arch. for *manabi*. 6 *Nuba-tama no*, p.-w. for *yo*. *Yo-narabe*, "every night." 7 *Sachihahi*, arch. for *saihahi*. *Bi*, arch. for *be*, "side." *Tatasu*, the Causat. form of *tatsu*, used merely for elegance. 8 *Tsuga ne ki no*, p.-w. for *tsugi-tsugi*, but here to be taken in its proper sense of "like the *tsuga* tree," *no* standing for *no gotoku*. *Iya*, arch. for *iyo-iyo*. 9 This line has but four syllables. Such irregularities as the use of lines of four, six and eight syllables are among the usual ornaments anciently employed to relieve the monotony of the five-seven metre. The second *ha (wa)* is the Separative Particle. *Toha ni*, "for ever." *Kare sede*, arch. for *karede*. 11 *Nihofu* in the arch. sense of "bright-coloured," "flourishing." 14 *Momiji-ba to*, "like the autumn-leaves" ("autumn-leaves" substituted for "chaff"). 17 *Uma-bito*, "the righteous." 18 *Keñ*, here Conclusive, not Attributive. 19 *Iyoyò*, arch. for *iyo-iyo*.

ONAZHIKU CHIYOKU-YAKU.

Fu-shiñ-zhiñ (不信人) no kuwañ-geñ (勸言) in ayumazu, sau shite tsumiñdo no michi ni tatazu, sau shite giyaku-zhiñ no tau (黨) ni za sezu, kakerite kare no tanoshimi ha Yehoba no nori ni oite ari, sau shite kare ga chiu-ya Kare[a] no nori wo kañgaheru tokoro no hito ha saihahi nari. Sau shite kare ha ka-riu no katahara ni uwerare, sore no zhi-setsu ni oite sore no mi wo shiyauzhi (生ヅ), sau shite sore no ha ha karezaru tokoro no zhiyu-moku (樹木) no gotoku ari; shikau shite kare ga nasu tokoro no ono-ono no mono woba kare ga shi-togu.

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[a] Shiyau-Tei wo sasu.

joyfully radiant when *leaving* his chamber would be inconceivable. 14 ***Mukogane***, "bridegroom." 15 *Mokoro-wo* (如已男), "well-matched antagonist." ***Wa ha***, etc., "resolved not to be outstripped." *Wa* arch. (except in *wa ga*) for *ware*. 17 *Yo*, arch. for *yori*. 18 *Kuma ochizu*, "every part." 20 *Kushi* (靈), in compounds, "marvellous," "sacred"; etc. 23 *Moru* for *mamoru*. 24 *A*, arch. Pronoun of the First Person. 25 *Ozo*, "folly." 26 *I-yorokoboshi*, arch. for *yorokobashi*. 27 *Omi* (臣), "subjects," "servants." 28 *Managari*, the original form of *magari*. *Sezute*, arch. for *sede*. 30 *Hiki-maseru*, "leading," "swaying." 34 *Ku-gane*, "gold." 36 *Sachi*, same as *sachihahi*, "happiness," "blessing." 38 *Iha-buchi ni*, "in private" (lit. "in a rocky gorge"). 41 *Koto*, 言. 42 *Koto*, 事. 43 *Chi-biki*, "which it would need a thousand men to move." *To*, "like." 45 . . . . *nañ*, Optative.

Onazhiku Chiyoku-Yaku.

Teñ ha Shiyau-Tei no yei-yo (榮譽) wo katari, sau shite sora ha Kare no te-waza wo ihi-arahasu. Ichi-zhitsu ha ta-zhitsu ni ihi, sau shite ichi-ya ha ta-ya ni shiñyou (信用) sasu. Geñ-giyo mo dañ-wa mo arazu: shikashi nagara kare-ra no kowe ga kare no abida ni kikoyu.

Kare-ra no oto ha shiyo-koku ni ide, sau shite kare-ra no geñ-giyo ha se-kai no hate made idenu. Muko ga kare no ne-ya wo idzuru gotoku ide, sau shite wi-zhiyau-fu (偉丈夫) ga kare no kiyau-sou (競走) suru koto wo yorokobu gotoku yorokobi, teñ no motsutomo toho-ki tokoro yori ide-tachi, sau shite mata sore no hate made hase-mahari, sau shite sono dañ-ki wo mote bañ-butsu wo terasu tokoro no tai-yau no tame ni Kare ga[b] karera[c] ni oite maku wo hariki.

Yehoba no nori ha tamashihi wo kai-kuwa sasuru isagiyoki nori nari. Yehoba no chikahi ha kaku-tei (確定) nari, sau shite gu-zhiñ ni chi-shiki wo tamafu. Yehoba no okite ha tadashiku ari, sau shite kokoro wo shite yorokobashimu. Yehoba no mei-rei ha kiyoku ari, sau shite me ni hikari wo tamafu. Yehoba no osore ha ketsu-paku (潔白) nari, sau shite yei-kiu ni soñ su. Yehoba no sai-dañ ha nawoku, sau shite matsutaku tadashiku ari.

Kare-ra[d] ha kiñ yori mo, ohoku no zhiyuñ-kiñ (純金) yori mo

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[b] Shiyau-Tei wo sasu. [c] Teñ to sora to wo ifu. [d] Nori, chikahi, tou wo ifu.

hori (欲) seraru beshi; naho-sara hachi-mitsu to hachi-bau yori amashi. Hata mata Nañji no boku[e] ha kare-ra ni yorite oshiherare, sau shite kare-ra wo mamoru koto ni oite dai naru hau-bi ari. Kare ga iku tabi hañ-pafu (犯法) suru wo tare shiru atafu? Nanji[f] yo! wa ga kakure-taru toga yori ware wo kiyome-yo! Mata ha kare-re[g] ga ware wo tsukasadoranu yau (様) ni Nanji no boku wo ogoreru aku yori sukuhe-yo: sareba ware ha isagiyoku, sau shite tai-zai wo ukezarañ to su. Wa ga chikara to wa ga kiu-shiyuu (救主) naru Yehoba yo! wa ga kuchi no kotoba to wa ga kokoro no kañgahe wo shite, tsune ni Nanji no me ni kanahaseshime-yo!

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[e] Onore wo ifu. [f] Shiyau-Tei wo sasu.
[g] Tsugi ni iheru aku wo ifu nari.

DAI NI ZHIFU SAÑ. (Ps. 23.)

TATAHE-UTA:

A wo moru ha — Ame shiroshi-mesu
Kimi nareba — Nani ka kaku beki
Uruhashiku — Nagusame-masañ
Nade-masañ to — Kiyoki kaha-be ni
[5]Ma-kusa kahi — Makoto no michi ni
Atomohite — Nigoreru kokoro
Ma-gokoro ni — Kahe-tamafu-rashi
Shika bakari — Uruhashi Kimi no
Hiki no mani — Mi nori wo tsuwe to
[10]Kashikoku mo — Taganete yukeba
Nuba-tama no — Kuraki mi kuni ni
I-yuku to mo — Ani ojime ya mo

Iya hi keni A wo seme-kitaru
Ada-bito wo Nagome-masañ to
[15]Nube n'uchi ni Ama tsu mi te mote
Mi ke tamahi Oho mi ki tamahi
Minanowata Ka-guroki kami ni
Kushi-abura Sosogi-tamaheba
Tamagiharu Inochi no kagiri
[20]Mi megumi shi Kaumuri-matsuri
Tokoshihe ni Tsukahe-matsurañ
Kimi ga mi araka ni.

5 *Ma-kusakahi*, "feeds with good grass." 6 *Atomohite*, "leading." 8 *Uruhashi*, for *uruhashiki*: in the arch. language the Conclusive is often thus found where classical usage would require the Attributive form. 9 *Hiki no mani*, "following His lead." 10 *Kashikoku mo* (equivalent to *kakemaku mo*), prop. "though with fear and trembling," but almost an Honorific Expletive. *Taganuru* (手束), "to lean on." 13 *Iya hi keni*, "daily more and more." 14 *Nagomuru* (和), "to subdue," "to quell." 15 *Nu-be n'uchi ni*, arch. for *no-be no uchi ni*, "on the moor." *Ama tsu mi te*, "God's hands." 16 *Ke*, "food." *Ki*, "drink." 17 *Minanowata*, p.-w. for *ka-guroki*. *Ka*, expletive. 19 *Tamagiharu*, p.-w. for *inochi*.

ONAZHIKU CHIYOKU-YAKU.

Yehoba ha wa ga boku-shiya nari: ware ha fu-soku sezhi. Kare ga awo-kusa ni oite ware wo shite fusashime; Kare ga sei-riu (靜流) no katahara ni ware wo hikiwi; Kare no na no tame ni Kare ga wa ga tamashihi wo kai-fuku (改復) shi; kare ga ware wo nahoki michi ni hikiu.

Sareba, ware ha shi-iñ (死陰) no tani ni ayumu to mo, ware ha idzure no gai nite mo ojiñ to sezu; ikañ to nareba Nañji [1] ha ware to tomo ni ari: Nañji no shi-ki-dzuwe (指揮杖) to Nañji no tsuwe to ware wo nagusamu. Ware wo ka-koku (苛酷) suru hito no gañ-zeñ ni Nañji ha ware ni mukahite shiyoku-dai wo mauke; Nañji ha abura wo mote wa ga kaube wo uruhoshi; sau shite wa ga hai (盃) ha mitsu.

[1] Shiyau-Tei wo sasu.

Wa ga itsu-shiyau-gai (一生涯) saihahi to megumi to nomi ware ni oyobañ to shi; sau shite ware ha mata yei-kiu ni Yehoba no ihe ni sumañ to su.

DAI HIYAKU. (Ps. 100.)

AMA TSU SUMERA WO HOMB-TATAHE-MAHOSHIKI WO YORODZU NO TAMI-KUSA NI SUSUMURU NO UTA:

Ono dzu kara Ware ha ohi sezu
Mite mochite Ama tsu Sumera no
Uruhoshiku Tsukurashi-tamahi
Mi tami zo to Mori-masu Kimi ga
[5]Oho mi idzu Sane tana-shirite
Ame ga shita Yorodzu no hito no
Yorokobohi Utafu utahi ni
Kowe tayezu Mede-hayasanañ
Mi megumi shi Toha ni kare sezu
[10]Mi koto shi mo Yo-yo ni kuchi senu
Umashi Kimi ga Ushi-haki-i-masu
Mi araka ni Mure-wi-worogami
Oho mi na wo Mochi-itsukanañ
Yo no naka no hito!

[1] *Ohi sezu*, (不生). This line follows the English Prayer-Book rendering. [5] *Sane*, "truly." *Tana-shiru*, arch. for *shiru*. [7] *Yorokobohi*, prop. *yorokob'ahi*, "rejoicing together." [10] *Kuchi senu*, arch. for *Kuchinu* (不朽). [11] Conclusive *umashi* for Attributive *umaki*. *Ushi-haki-i-masu* (主張座), "where He dwells and rules" (*i* for the more usual *wi*). [12] *Worogami* (from *wori-kagami*) arch. for *wogami*. [13] *Mochi-itsukanañ*, (持齋), Optat. or Imperat., "take and worship."

ONAZHIKU CHIYOKU-YAKU.

Shiyo-koku yo! Yehoba ni mukahite kuwañ-sei (歡聲) wo idase. Kiñ-ki (欣喜) wo mote Yehoba ni tsukahe-yo; kau-kiyou (高興) wo

mote Kare no mahe ni kitare! Yehoba ha Shiyau-Tei nari to shiyou-chi (承知) se-yo; Kare ga ware-ra wo tsukuri, sau shite ware-ra wa Kare no mono (物), Kare no tami, sau shite Kare no maki-ba no guñ-yau (羣羊) nari.

Shiya-rei (謝禮) wo mote Kare no moñ-nai ni iri, sañ-bi wo mote Kare no tei-ri (庭裏) ni ire-yo! Kare ni shiya se-yo! Kare no na wo ai-shiyou (愛稱) se-yo! Ikañ to nareba, Yehoba ha yoroshiku, Kare no megumi ha tayezu, sau shite Kare no shiñ-zhitsu ha dai-dai ni ari.

DAI HIYAKU ZHIFU SAÑ. (Ps. 118.)

AMA TSU SUMERA NÒ HI-KAGE NI MORESHI IYASHIKI HITO WO MEGUMI-TAMAFU WO MEDE-TATAHETE YOMERU UTA:

Kakemaku mo Ama tsu Sumera ni
Kashikoku mo Tsukahe-matsurite
Oho mi na wo Agame-tatahe-yo
Akane-sasu Higashi no kata yu
Yufu-hi sasu Nishi no sora made
Kefu yori ha Yorodzu yo kakete
Tokoshihe ni Tayezu koso agame
Kuni ha shi mo Saha ni aredomo
Ame ha shi mo Hiroshi to ihedo
Taka shiranu Kumo no anata ni
Komoriku no Miya ni wi-mashite
Ame tsuchi wo Mi-oroshi-tamahi
Chiri ni fusu Madzushiki mono wo
Sukuhi-age Yoki mi to mo nashi
Umazu-me ni Ko-dakara sadzuke
Sakaye aru Tozhi to shi megumu
Uruhashiki A ga Oho-Kimi ni
Tagufu beki are ya?

6 *Kakete* has the force of "until." 8 *Saha*, "numerous;" conf. Colloquial *taku-sañ*, written 澤山. 10 "Beyond the immeasurably high clouds." 11 *Komoriku no*, "remote." 14 *Mi* here has the force of *kurawi*. 15 *Takara* adds little to the meaning. 16 *Tozhi*, "a housewife." 18 "Is there any who is like?"

ONAZHIKU CHIYOKU-YAKU.

Hareruya[a]! Yehoba no boku yo! Yehoba no na wo sañ-bi se-yo, sañ-bi se-yo! Ima yori nochi yei-kiu ni Yehoba no na ha ai-shiyou serareñ wo wa ga negafu. Hi no idzuru yori sono iru made Yehoba no na ha sañ-bi su beshi.

Yehoba ha bañ-koku no uhe ni hiide; Kare no yei-yo ha teñ no uhe ni hiidzu. Giyoku-shiyau (玉牀) ni za shite, teñ-chi wo haruka ni mi-oroshi, kare[b] wo ki-zoku, sunahachi Kare no kuni[c] no ki-zoku ni narabeñ ga tame ni jiñ-ai (塵埃) yori hi-zhiñ (卑人) wo age, hai-tai (灰堆) yori hiñ-zhiñ (貧人) wo kakage, dou-zhi (童兒) no ureshiki haha tote umazu-me wo shite ihe wo tamotsu hito to narashimuru wa ga Shiyau-Tei naru Yehoba ni tare ka niru?—Hareruya!

[a] Isurayeru no go ni shite, Shiyau-Tei wo ai-shiyou se-yo to no i wo fukumeri.
[b] Shimo ni iheru hi-zhiñ hiñ-zhiñ nari. [c] Teñ-koku wo ifu.

DAI HIYAKU ZHIFU SHI. (Ps. 114.)

ISURAYERU-BITO NO FURUKI TSUTAHE NI CHINAMITE AMA TSU SUMERA NO KUSHIKI HOMARE WO YOMERU UTA:

Kumo-wi nasu	A ga toho tsu oya no
Koto-sayegu	Kuni ideshi toki
Shiko tsu kuni	Uchi-ideshi toki ni
Hisa-kata no	Ama tsu Sumera no
[5]Seo-yama ni	Mi yashiro wo shime
Yo-mo no kuni	Kikoshi-wi-mashiki
So wo mireba	Umi mo michi-sake

So wo mireba Kaha mo shiri-zoki
Ashibiki no Yama mo wo-zhika no
[10]Tachi-mahishi Koko shi omohoyuru
Michi-sakeshi Umi no ara-nami mo
Shiri-zokishi Kaha no haya-se mo
Sa-wo-shika no Tachi-mafu yama mo
Nani zo ya to Wa ha omohedomo
[15]Chi-biki nasu Ishi wo shimidzu ni
Kahe-tamafu Ama tsu Sumera no
Mi idzu ni ha Umi yama kaha mo
Kashikomazarame ya?

[1]*Kumo-wi nasu*, p.-w. for *toho*, "distant." *Toho tsu oya*, "ancestors." [2]*Koto-sayegu*, generally used as the p.-w. for *Morokoshi*, "China," but here in its proper sense of "chirping," contemptuously applied to foreign languages. [3]*Shiko tsu kuni*, "vile country." *Uchi*, here and constantly Expletive. [5]*Seo*, "Sion," used for "Judah." *Shimuru*, "to fix," "to establish." [6]*Yo-mo no kuni*, "the surrounding provinces," i.e. "Israel." *Kikosu*, "to rule." The repeated *his* in this verse is, after the commentators, taken as applying to the Deity. [7]*So*, arch. for *sore*. [9]*Ashibiki no*, p.-w. for *yama*. *Wo-zhika no*, "*like* young stags" ("stags" substituted for "rams" and "lambs"): [10]*Tachi*, Expletive. Attributive *mahishi* for Conclusive *mahiki* on account of the quasi-Accusative connection with the succeeding clause. In prose *omohoyuru* would be followed by *ha*. [13]*Sa*, Expletive. *Shika* must not here take the *nigori*. After *no* supply *gotoku*, as above. [15]*Chi-biki nasu*, same as *chi-biki no*.

ONAZHIKU CHIYOKU-YAKU.

Isurayeru ga Ejifuto wo ide, Yakobu no ka-zoku ga i-geñ no kuni wo ideshi toki ni,—sono toki ni Yuda ha Kare[a] no sei-shiyo (聖所) to nari, Isurayeru ha Kare no riyau-buñ to nareri.

Umi ha sore wo mi, sau shite nige; Yorudañ ha shiri-zoki; tai-zañ (大山) ha wo-hitsuzhi no gotoku, seu-zañ (小山) ha waka-hitsuzhi no gotoku tobiki.

Umi yo! nani wo urehite nañji ha niguru? Yorudañ yo! nani wo

[a] Shiyau-Tei wo sasu. Tsugi no Kare mo onazhi.

urehite nañji ha shiri-zoku? Tai-zañ yo! nani wo urehite nañji-ra ha wo-hitsuzhi no gotoku tobu? Seu-zañ yo! nani wo urehite nañji-ra ha waka-hitsuzhi no gotoku tobu?

Chi yo! Iha-wo midzu no ike ni kuwa shi, kataki iha wo idzumi ni kuwa suru tokoro no Yehoba, sunahachi Yakobu no Shiyau-Tei, no meñ-zeñ ni shiñ-ku (震懼) se-yo!

DAI HIYAKU ZHIFU GO. [a](Ps. 115.)

To tsu Kuni-Bito no Tafutomu Kami ha Mono Ihanu Hito-Gata ni Shite, Wa ga Tanomu Ama tsu Sumera no Mi Idzu ha Mede-Tatahe Beki wo Yomeru Uta:

Mi sakaye ha Kokotaki Kimi no
Ware-ra mina Iyashiki tami
Shika ha aredo To tsu kuni-bito no
Hahi-fushite Worogamu oni no
So ga kuchi ha Koto wo ye-norazu
So ga me-ra ha Mono wo ye-miyezu
So ga mimi ha Kowe wo ye-kikazu
So ga te-ra ha Mono ni ye-furezu
So ga ashi ha Tsuchi wo ye-fumazu
So ga hana ha Kawori ye-kagazu
Koto tohazu Oto mo kikoyenu
Shiro-kane ya Ko-gane mote seshi
Shiko-gata wo Kashikomi-tanomu
Yatsuko-ra mo Shiko hito-dochi zo
Shikasuga ni Ari nami wo su to

[a]The opening and closing portions of the versified rendering of this Psalm are more than usually free.

Megumi ha mo Megumasu Kimi
Mi koto ha mo Iya kataki Kimi
Hisa-kata no Ame ni mi idzu wo
Furi-tamafu Ama tsu Wagimi gà
[20]Oho na sahe Norohi-kegaseru
Saga-bito ha Nani omohi-kemu
Afuge-yo ya Mi tami mo negi mo
Ya-so kuni no Yoki hito made mo
Wo-date nasu Na wo moru Kimi wo
[25]Itadakite Afugi-matsuraba
Umashi Kimi zo Mi tami mo negi mo.
Ya-so kuni no Yoki hito made mo
Tsuma ko-ra mo Hi-tarashi-bito mo
Nade-masañ Nigihahi-masañ wo
[30]Toho tsu kuni Yomi no sakahi ni
Makari-ite Toha ni koyaseru
Hito mina ha Mi idzu shiranedo
Ame tsuchi wo I-nashi-tamahite
Hisa-kata no Ame ni mashi-mashi
[35]Ara-kane no Tsuchi wo hito-gusa ni
Yosashi-masu Kokota tafutoki
Oho-Kimi wo Yorodzu yo kakete
Kefu yori ha Ware ha hayasana
Hito mo hayasane!

[2]*Kokotaki* (許多), arch. for *ohoki*. [3]*To tsu kuni-bito*, "the heathen." [4]*Oni* "bad spirits"; *Kami*, used in the literal version, may denote spirits good or bad. [6 & 8]*Me-ra* and *te-ra*, arch. Plurals. [11]"Speechless and deaf." [13]*Shiko-gata*, "idols." [14]*Hito-dochi*, "the same kind of creatures." [15]*Ari nami wo su to*, "denying the truth." [16]*Megumasu*, Honorific Causat. for *megumu*. [17]*Mi koto* for *makoto*. [19]*Wagimi*, contraction of *wa ga Kimi*. [22]*Afuge*, pronounced *aoge*. *Negi*, "priests" (properly the grade of Shiñtau priests above the *kañnushi*). [23]*Ya-so*, "all" (lit. "eighty," 八十). [24]*Wo-date nasu*, "like a shield": the *wo*, though written 小, is expletive. *Na*, arch. Pronoun of the Second Person. [28]*Hi-tarashi-bito*, "adults." [29]*Nigihahi*, Active Verb. *Wo* has the force of "but." [30]"To the distant country, the frontiers of the dark land." [31]*Ite* arch. for *yukite*. *Toha ni koyaseru*, "remain for ever." [34]*Mashi-mashi*, "augustly dwells," the first half of the compound retaining the original meaning of "to dwell," while the

second is softened into an Honorific. 35 *Ara-kane no*, p.-w. for *tsuchi*. *Hito-gusa*, "mankind." 36 *Yosasu*, "to grant." 38 & 39 "I will praise, and do you praise": *na* arch. Future, and *ne* arch. Imperative.

ONAZHIKU CHIYOKU-YAKU.

Yehoba yo! Ware-ra ni yei-yo wo tamahazu, ware-ra ni yei-yo wo tamahazu, Nañji no oñ-kei (恩惠) to Nañji no shiñ-zhitsu no tame ni Nañji no na ni yei-yo wo atahe-yo. Ta-koku-zhin[b] ha nani yuwe ni ihañ: "Ima kare-ra[c] no Shiyau-Tei ha idzuku ni aru?"

Shikau shite ware-ra no Shiyau-Tei ha teñ ni ari; Kare[d] no hori suru tokoro no nani nite mo Kare ga sore wo okonafu. Kaherite kare-ra[e] no kami-tachi ha zhiñ-saku no kiñ-giñ nari. Kare-ra ha kuchi wo mochite mo katarazu. Kare-ra ha me wo mochite mo mizu. Kare-ra ha mimi wo mochite mo kikazu. Kare-ra ha hana wo mochite mo kagazu. Kare-ra no te ha, kare-ra ga mote furezu. Kare-ra no ashi ha, Kare-ra ga mote ayumazu. Kare-ra ha kare-ra no nodo wo mote katarazu. Kare-ra wo tsukuri, kare-ra wo tanomu tokoro no ono-ono no hito ha kare-ra no gotoku ni naru.

Isurayeru yo! Yehoba wo tanome-yo! Kare[f] ha kare-ra[g] no tayori to tate (楯) nari. Arona no ka-zoku yo! Yehoba wo tanome-yo! Kare ha kare-ra no tayori to tate nari. Yehoba wo osoruru (畏) tokoro no hito-bito yo! Yehoba wo tanome-yo! Kare ha kare-ra no tayori to tate nari.

Yehoba ha ware-ra wo kokoro ni kakeki; Kare ha megumañ to su. Kare ha Isurayeru no ka-zoku wo megumañ to shi, Kare ha Arona no ka-zoku wo megumañ to shi, Kare ha Yehoba wo osoruru tokoro no hito-bito chiyau-yeu (長幼) tomo ni megumañ to shi; Yehoba ha nañji-ra to nañji-ra no ko-domo to ni mono wo masañ to su.

Teñ-chi no zau-butsu-shiya naru Yehoba nite nañji-ra ga megu-maruru wo wa ga negafu. Teñ ha Yehoba no tame no teñ nari, sau shite Kare ga chi wo zhiñ-shiyu (人種) ni tamahiki.

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[b] Shiyau-Tei ni tsukahezaru shiyo-koku no hito wo ifu.

[c] Shiyau-Tei ni tsukafuru hito wo ifu.

[d] Shiyau-Tei wo sasu.

[e] Shiyau-Tei ni tsukahezaru hito wo ifu.

[f] Shiyau-Tei wo sasu. [g] Isurayeru-bito wo ifu.

Shi-shiya (死者) mata ha shi-kiyau (死境) no mu-sei (無聲) ni kudaru tokoro no shiyo-niñ (諸人) ha Yehoba wo sañ-bi sezu. Kaherite ware-ra ha ima yori nochi yei-kiu ni Yehoba wo ai-shiyou señ to su.—Hareruya!

DAI HIYAKU NI`ZHIFU SAÑ. (Ps. 123.)

ARABURU HITO NI SEMERARETE AMA TSU SUMERA NO MI TASUKE WO NEGI-MATSURU UTA:

Hisa-kata no Ame ni masu tefu
Oho-Kimi wo Wa ha afugana
Masura-wo no Nushi afugu goto
Wotome-ra no Tozhi afugu goto
[5]Me kare sezu Afugi-tanomite
Mi megumi wo Tayezu wa ga negu
Hokorahishi Hito ni warahaye
Chihayaburu Hito ni nikumaye
Umashi Kimi no Megumi shi nakuba
[10]Ikaga semu ka mo?

[1]*Tefu*, pronounced *chō*, contraction of *to ifu*, lit. "said to," but almost an expletive. [2]*Afugana*, arch. Future. [5]*Me kare sezu*, "with eyes that tire not." [6]*Negu*, "to pray for;" conf. *negi*, "a priest." The compound form *negafu* has survived in common usage. [7]*Warahaye*, arch. Passive for *warahare*. [8]*Chihayaburu*, "violent," "oppressive." In the later poetry it passed into a p.-w. for bad gods, and eventually for gods in general. *Nikumaye*, arch. Passive for *nikumare*: prose would here require the Participle or the so-called Conditional, instead of the Radical form.

ONAZHIKU CHIYOKU-YAKU.

Teñ no giyoku-shiyau (玉牀) ni za suru tokoro no Nañji ni ware ha wa ga me wo agu. Mi-yo-ya! Boku-ra no me ha Karera no shiyuu-kuñ (主君) no te he mukafu gotoku, hi (婢) no me ha Kare no shiyuu-

bo (主母) no te he mukafu gotoku,—sono gotoku ware-ra no me ha, Kare[a] ga ware-ra wo megumu made, Yehoba he mukafu.

Yehoba yo! ware-ra wo megume, ware-ra wo megume-yo! Ikañ to nareba ware-ra ha zhifu-buñ (十分) ni kei-betsu wo ukeki. Ware-ra no tamashihi ha keu-shiya (驕者) no anadori to bau-kuñ (暴君) no kei-betsu to zhifu-buñ ni ukeki.

[a] Shiyau-Tei wo sasu.

DAI HIYAKU NI ZHIFU SHI. (Ps. 124.)

AMA TSU SUMERA NO MI TASUKE WO MEDE-KASHIKOMU NO UTA:

Arachi-wo no Osohi-koshi toki
Hisakata no Ama tsu Oho-Kimi no
Mi idzu moto Tasuke-masazuba
Chihayaburu Hito ni ya nomare
[5]Tagi tsu se no Kaha ni ya ware ha
Shidzumi-hato Horobi-hateñ wo
Ame tsuchi wo I-nashi-tamahishi
Oho-Kimi no Aharemi-maseba
Shiko tsu wo ga Ye-mono to narazu
[10]Tonami hari Torafu hito no te yu
Tobi-kakeru Kaho-dori no goto
Mi yo no tanoshisa!

[5] *Tagi:* in arch. usage this word takes the *nigori*, and signifies, not so much a waterfall, as the rapids of a river. 6 . . . *teñ wo*, "should have . . . but." [10] *Tonami*, contraction of *tori no ami*. *Torafu*, from *tori-afu* (though written 捕), "to catch." [11] *Kaho-dori* (貌鳥), "a beautiful bird." [12] The whole sentence has the force of an exclamation.

ONAZHIKU CHIYOKU-YAKU.

Isurayeru wo shite ihaseshime-yo: Hito-bito ga ware-ra ni sakahite hatsu-ki (發起) seshi toki ni, Yehoba ha wa ga mikata ni arazareba, sono toki ni kare-ra no ikari ga ware-ra ni sakahite hatsu seshi toki ni, kare-

ra ga ware-ra wo sei-doñ (生呑) seshi narañ, sono toki ni midzu ga ware-ra wo oboraseshi narañ, kaha ga ware-ra no tamashihi wo shidzumeshi narañ, keu-mañ ni minagiru midzu ga ware-ra no tamashihi wo shidzumeshi narañ.

Kare-ra no shi-ga (齒牙) no ye-mono tote ware-ra wo sutezarishi tokoro no Yehoba ha ai-shiyou serareñ wo wa ga negafu. Ware-ra no tamashihi ha kiñ-teu (禽鳥)[a] no gotoku ho-teu-sha (捕鳥者) no ami yori nigeki: ami ha sake (裂), sau shite ware-ra ha nigeki.

Teñ-chi no zau-butsu-shiya naru Yehoba no na ha ware-ra no tayori nari.

[a] This compound is used because the simple word *tori* suggests the idea of "a barn-door fowl."

DAI HIYAKU NI ZHIFU SHICHI. (Ps. 127.)

YORODZU NO KOTO-GOTO AMA TSU SUMERA NO MI TAMA-MONO NARU WO YOMERU UTA:

Ihe ha mo Ama tsu Oho-Kimi no
Mi te mote Tatezuba tatazu
Iha-ki ha mo Ama tsu Oho-Kimi no
Mi idzu mote Morazuba yohashi
Mi ke shi mo yo Wa ha inuru to mo
Ama tsu Kimi no Tada ni kudasu zo
Shikasuga ni Oho tari mi mi no
Mi megumi to Omohoyede koso
Ake-boshi no Ide-konu saki yo
Yufu-dzutsu no Kage kururu made
Adzusa-yumi Itodo isoshimu
Kahi nakere Umare-ide-kuru
Ko-ra chifu mo Tami wo uruhosu to
Ama tsu Kimi no Tamafu takara ya
Masura-wo ga Yu-de no ya no goto
Ya nareba ya Ki no kana-do ni
Wa ga ada ni I-mukafu toki zo.

Ito saha ni Yugi ni sono ya wo
Takuhafuru Chichi no mikoto ha
[20]Tanoshikiro ka mo!

1 to 4 Considerably compressed to suit the Japanese taste for brevity. *Iha-ki* (岩城), "a firm castle" or "fortified city." 7 *Oho tari mi mi* (大足御身), "the great, all-sufficing, august being." 9 *Yo*, arch. for *yori*. 11 *Adzusa-yumi*, p.-w. for words beginning with イ and others. *Isoshimu*, "to hurry," "to take pains." 13 *Ko-ra*, "children," arch. Plural. *Chifu*, pronounced *chiyū*, arch. contraction of *to ifu*. 15 *Yu-de*, for *yumi-te*, "the left hand." 16 *Ya nareba ya*, "being arrows." *Ki* (城), arch. for "a castle." *Kana-do* (from 金 and 門), arch. for *kado*, "a gate." 17 *Wa ga*, "their." 19 *Chichi no mikoto* (usually preceded by the p.-w. *chichi no mi no*), "father." 20 *Tanoshikiro ka mo*, "is happy indeed": *kiro* would seem to stand for . . . . *ku aru; ka mo* is exclamatory like the common classical *ka na*.

ONAZHIKU CHIYOKU-YAKU.

Ihe wo ba Yehoba ga zau-ritsu (造立) sezareba, sore wo zau-ritsu suru tokoro no hito-bito ha mu-yeki ni rau (勞) su. To-fu (都府) wo ba Yehoba ga shiu-go (守護) sezareba, sore wo shiu-go suru tokoro no hito ha mu-yeki ni yo wo akasu.

Nañji-ra ga ku-rau (苦勞) no pañ wo kuhi-tsutsu, hayaku okite sau shite tada osoku ikofu ha mu-yeki nari. Kedashi sono gotoku Kare[a] ga Kare no ai-shi (愛子) ni nemuri no uchi ni tamafu.

Mi-yo-ya! Dañ-zhi (男兒) ha Yehoba no tama-mono nari; hara no mi ha hau-bi (褒美) nari. Yei-iyuu (英雄) no te ni ya (箭) no aru gotoku, sono gotoku sau-neñ (壯年) no dañ-zhi-domo nari.

Kare-ra[b] ni mitsuru yugi wo motsu tokoro no hito ha saihai nari. Kare-ra ha moñ ni oite teki to kataru toki ni, kare-ra ga hajiñ to sezu.

[a] Shiyau-Tei wo sasu. [b] Dañ-zhi wo ifu.

DAI HIYAKU NI ZHIFU HACHI. (Ps. 128.)

YOKI HITO NO SACHIHAHI WO YOMERU UTA:

Yasumishishi Wago Oho-Kimi ni
Kake-maku mo Tsukahe-matsurite

Hisa-kata no Ama tsu mi nori wo
Kashikoku mo Mori-keñ hito no
[5]Sono sachi ya Kagiri mo shirani
Ta tsu mono Mi-nori yutakeku
Hata tsu mono Woshi-mono saha ni
Waka-kusa no Tsuma no mikoto ha
Niha n'uchi no Tama-katsura goto
[10]Ari-ginu no Takara no ko-ra ha
Haru-no-be no Waka-na no gotoku
Ono ga mi mo Toshi no wo nagaku
Ko-ra ga ko no Suwe no suwe made
Kuni sakiku Miyako yutaka ni
[15]Nagaraheñ Ama tsu Oho-Kimi no
Mede-tamahi Megumase-tamafu
Hito no tanoshisa!

1 *Yasumishishi*, p.-w. for the following. *Wa go*, arch. irreg. form for *wa ga*. 5 *Kagiri mo shirani*, "boundless"; *ni* is the arch. Radical form of the Negative *nu*. 6 *Ta tsu mono*, "the produce of his field"; 7 "The produce of his garden and his food being very abundant." 8 *Waka-kusa no*, p.-w. for *tsuma*. *Tsuma no mikoto*, "wife." 9 *N'uchi*, arch. contraction for *no uchi*. *Tama*, "beautiful." The figures of the vine and the olive-branches can only be thus rendered by equivalents. 10 *Arigina no*, p.-w. for *takara*, which latter is almost an Expletive. 11 *No-be* (野邊), "a grassy lea." 12 *Toshi no wo* (年緒), "the thread of his life." 14 *Sakiku*, "prosperous," only used in the Adverbial form. 17 "O! the happiness of the man who etc., etc."

Onazhiku Chiyoku-Yaku.

Yehoba wo osore, Kare no michi wo ayumu tokoro no ono-ono no mono (者) ha saihahi nari. Nañji[a] ha mochi-roñ nañji no shiu-sei (手製) no mono wo kuhañ to su; nañji ha saihahi nari, sau shite nañji ha nani-goto mo tanoshiku ari.

Nañji no tsuma ha nañji no ihe no oku ni aru yutaka naru bu-dau no gotoku ari; nañji no ko-domo ha nañji no tsukuhe no mahari naru kañ-rañ no ko-yeda no gotoku ari.

---

[a] Michi wo ayumu shiñ-zhiya (信者) wo ifu.

Mi-yo-ya! Yehoba wo osoruru tokoro no hito ha mochi-roñ kaku aiseraru. Seo-yama yori Yehoba ha nañji wo mede; sau shite nañji no shiyau-gai (生涯) nañji ha Yerusareñ no hañ-zhiyau (繁昌) wo mi; sau shite nañji ha nañji no ko-domo'no ko-domo wo miñ wo wa ga negafu. Isurayeru ni hei-añ arañ wo wa ga negafu.

DAI HIYAKU SAÑ ZHIFU SAÑ. (Ps. 133).

TAGAHI NI MUTSUMERU MI NO SACHIHAHI WO YOMERU UTA:

Uruhashiku	Ahi-sumu tami no
Sono sachi ya	Taguhete ihana
Naguhashiki	Oho-negi Arona no
Itadakite	Ya-tsuka no hige yu
[5]Koromo made	Mo no suso made ni
Sosogu chifu	Kushi-abura ga goto
Mata ha shi mo	Taguhete ihana
Hisa-kata no	Ama tsu Oho-Kimi no
Kashikoku mo	Mi koto-nori shite
[10]Toko-toha ni	Mede-tamahi-masu
Seo-yama no	Kushi-yama no he ni
Herumo-ne yu	Uruhohi-okeru
Tsuyu-shimo no	Shira-tama goto mo
Uruhashiku	Ahi-sumu tami no
[15]Sono sachihahi ha!	

[2] *Taguhete*, "by a similitude." *Ihana*, arch. Future (for *ihañ*). [3] *Naguhashiki* (名細), "far-famed," arch. equivalent of the phrase *na ni shi ofu*, common in the classical poetry. [4] *Ya-tsuka* (八束), "very long." [10] *Toko-toha ni*, "for evermore." [11] *Kushi-yama*, "sacred mountain." *He*, 邊. [13] *Tsuyu-shimo*, "dew," *shimo* being an Expletive, though written 霜, and not to be confounded with the particles *shi mo*. [14] & [15] Initial lines repeated after the manner of the *se-dou-ka*.

ONAZHIKU CHIYOKU-YAKU.

Mi-yo-ya! Kei-tei mo itsu-shiyo (— 所) ni sumu koto ha ika ni yoroshiku, sau shite ika ni ureshiku aru yo! Sore ha Arona no hige ni shidzuka ni nagare-kudari, karo no i-fuku no suso made shidzuka ni nagare-kudaru kaube no tafutoki abura no gotoku; mata ha Seo-yama ni shidzuka ni nagare-kudaru Herumo no tsuyu no gotoshi: ikañ to nareba soko ni Yehoba ha oñ-kei, sunawachi inochi wo yei-kiu ni maukeki.

DISCUSSION.

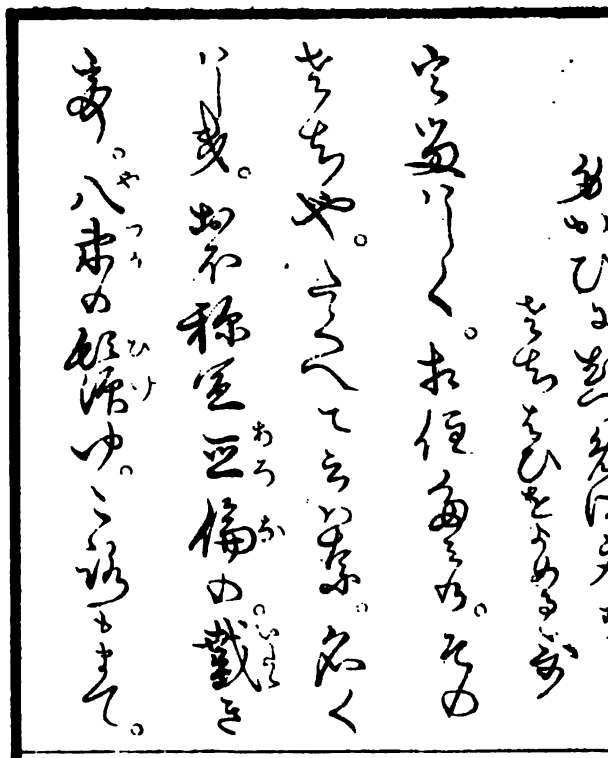
The Rev. J. L. Amerman observed that the Japanese could use their colloquial dialect with the element of vulgarity eliminated. It then became suitable for serious compositions. He knew of several serious publications in the colloquial dialect which had achieved a very wide circulation. He considered that the greatest objection to the plan proposed by Mr. Chamberlain was the fact that there *was* a double rendering. In translating the Scriptures it was very essential that the sacred text should be expressed in one way and one way only. Any paraphrase would be apt to reflect the distinctive doctrinal views of the translator. The experience of those who had used the English Prayer-Book version of the Psalms seemed to show that a paraphrase, versified and amplified, was unnecessary. The present tendency in Japan was towards the extended use of Sinico-Japanese, between which and the colloquial style a gradual approximation seemed to be taking place.

Mr. Satow said he had had the pleasure of reading Mr. Chamberlain's translations into ancient Japanese verse, and he had no hesitation in saying that they appeared to him to convey the spirit of the English original much more closely than the literal versions. In spite of the success obtained by the author of the paper, he was, however, inclined to agree with the view of the last speaker, that this style would not be found adequate to translating the whole of the Old Testament. The Chinese classics to the follower of Confucius, and the Chinese versions of the Buddhist Scriptures to the Buddhist priest, were what the Bible is to the European, and their style ranked as high in the judgment of Japanese as that of the English version in the opinion of Englishmen. If the Chinese version of the

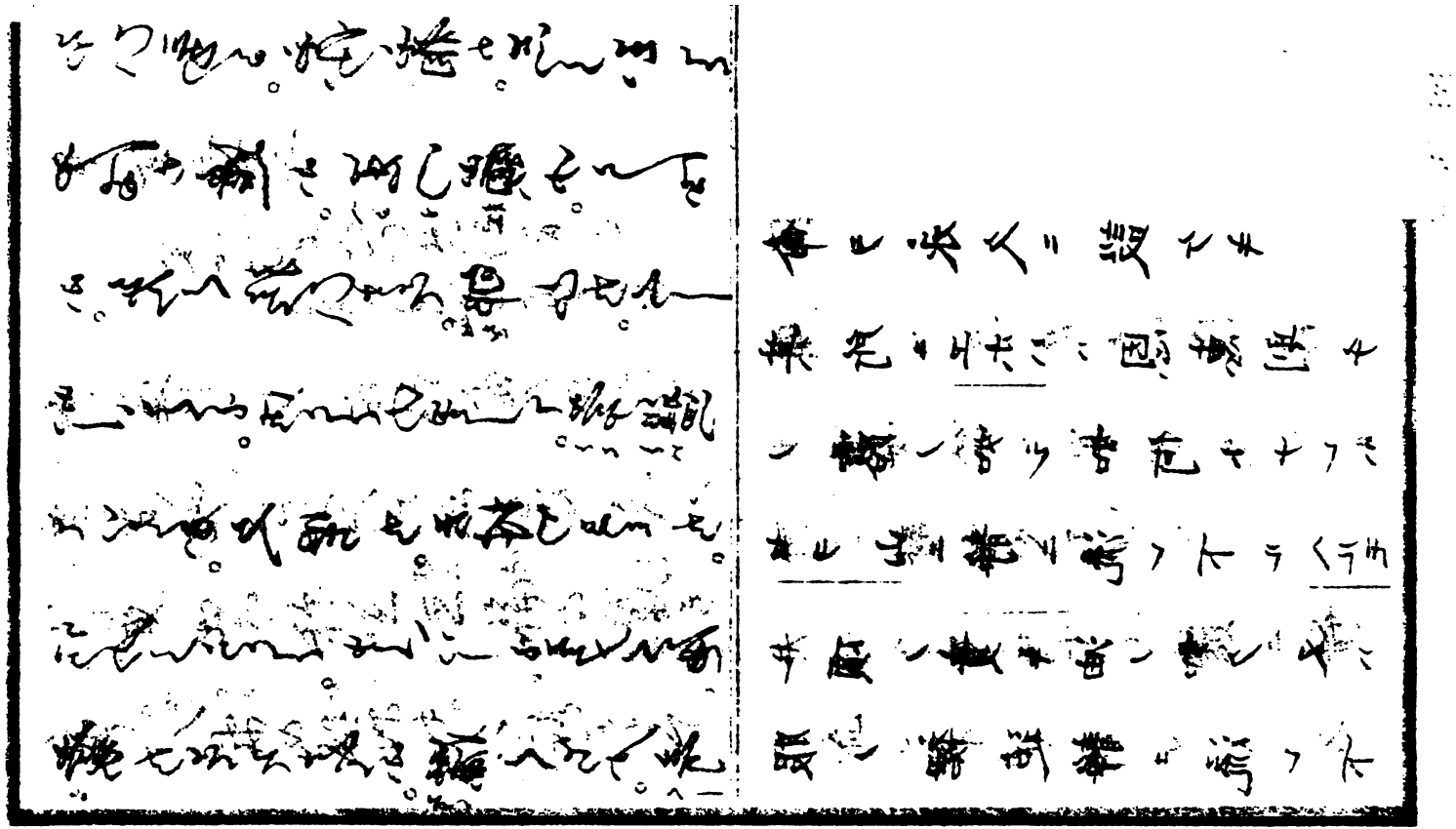
もろこしにて。

碧悟桐和波花

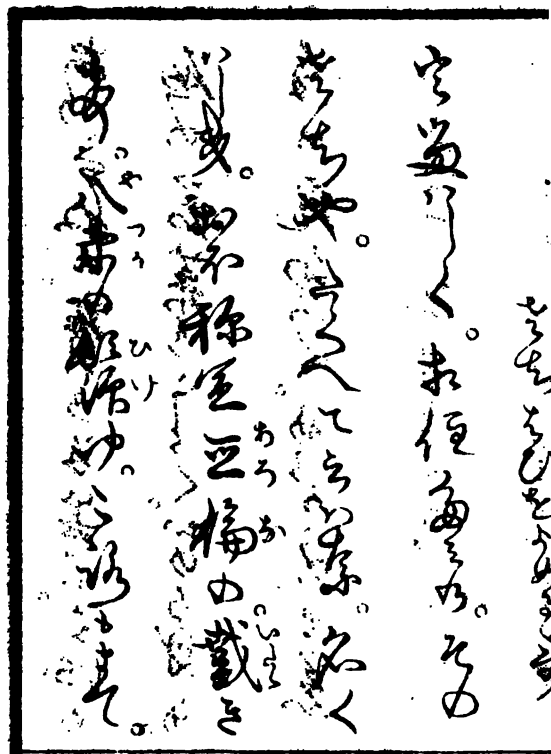
服ノ裾迫静ニ流レ下
ル頂ノ貴キ油ノ如ク又ハ
セヲ山ニ静ニ流レ下ルヘルモ
ノ露ノ如シ如何トナレハ
其所ニエホハハ恩恵則チ
命ヲ永久ニ設ケキ



同
観ヨヤ兄弟モ一所ニ住ン
トハ如何ニ宜敷而メ如
何ニ嬉シクアルヨ
夫レハアロナノ鬢ニ靜
ニ流レ下リ彼レノ衣



服ノ裾迫静ニ流レ下
ル頂ノ貴キ油ノ如ク又ハ
セヲ山ニ静ニ流レ下ルヘルモ
ノ露ノ如シ如何トナレハ
其所ニエホハヽ恩恵則チ
命ヲ永久ニ設ケキ



同
観ヨヤ兄弟モ一所ニ住ン
ト欲シ何ニ宜敷而メ如
何ニ嬉シク思フラルヨ
夫レハ又如何ナリ難キ
流レ下リ敷レ水ノ衣

[illegible]

三十三

トルツル中七慶レ

ツル中七慶レヘケルトラリ外杵

四ケ倍メ手ニ表ノ中乗ノ中乗ル四ケ

肖宇ニケラキフリノ數皿ル

ケ大ニニ手ル領ル倍メ手ノ刑

ニ七擢セソ領オルラ　ホル立ルニ

壽ルメ　ケ大ニル歌ラセ定ノ人

同

一律ニ民法ニ基ク人事ニ関シ従来ノ慣習ニ依リタル事項ハ此ノ限ニ在ラス

同

夫ノ不在又ハ心神喪失ノ場合ニ於テ妻カ為シタル訴訟行為ニ付テハ此ノ限ニ在ラス

同

妻ノ単独ニテ為シタル訴訟行為ニ付テハ此ノ限ニ在ラス

あらそぬめ。實のもる等いとはの
爲の。若葉ろうく。おのろ男も。
多の尾あろく。みろうの。そ名
めまて。國さうく。宮古ゆと
かふ。あろふっん。を津おんき
か。名て。ねひめくませ。ふの
樂しく。

観ヨヤ エホハヨ畏レヲ所ノ人
ハ勿論カク愛セラレセコハヨヤ
エホハヨ愛ヲ而シ汝ヲ
涯汝ハ エレカレン 繁昌
見而ノ汝ハ汝ヲ
ニヨ五カ頼ニ
アニヨ五ノ頼ノ

所ノ谷ノ着ハ幸ナリ汝ハ
道ヲ歩行
信者ナリト云 勿論汝ノ手製ノ
物ヲ食ハントス汝ハ幸ナリ而メ
汝ハ何事モ樂シクアリ
汝ノ妻ハ汝ノ家ノ奥ニアル
豊ナル葡萄ノ如クアリ汝ノ
兒ハ汝ノ机ノメクリナル
橄欖ノ小枝ノ如クアリ

[illegible]

蕨薇ノ八枝ノ如シ

所謂其ノ嘗メシニ十ラ

難ナラ樵檐ノ如シレニ其ノ

其ノ妻ハ其ノ家ノ興ヲ

其ハ何事ヲ楽シムレニ

苦ヲ食ハシメ其ハ幸ナリ

儒道ヲ行フ者ニ 論其ノ

問ノ答ノ者ハ幸ナリ

「ハ御二中一難二ト為二御意一ノ」

ニ十五ノ項ノ如ク其罪

ニ十五ノ項ノ如ク其罪

ニ十五ノ項ノ如ク其罪

僕等ノ目ハ彼等ノ主君ノ手ヘ向フ如ク婢ノ目ハ彼レノ主母ノ手ヘ向フ如ク其如ク我等ノ目ハ彼レ上帝ヲ指カ我等ヲ憐ム迄ニホハヘ向フニホハヨ我等ヲ憐メ我等ヲ憐メヨ如何トナレハ我等ハ十分ニ軽蔑ヲ受ケキ我等ノ魂ハ驕者ノ悔リト暴君ノ軽蔑ト十分ニ受ケキ

[illegible]

何ノ人ハ幸ナリ 彼等

彼善ヲ思ミニ満ル報ヲ得ン

ソ生年ノ男児イモナリ

彼ノ手ニ詩ノアル如クシテ

ナリ 其貴ノ賓ハ凝美ナリ 彼

想ヨ女思児ハ立ホハノ陽

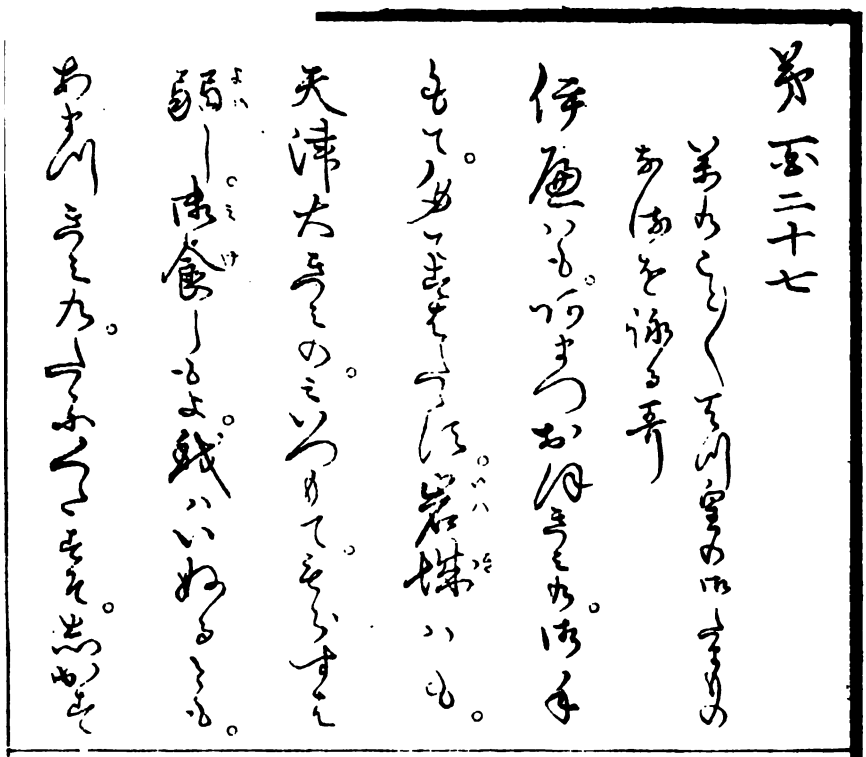
レノ愛子ニ眼ノ中ニ踊「ソ」

ナリ 蓋其ロソ彼ヲ知ナト 帝

ヘンリイオット氏は決して決闘を
勧めず無論、二人の内どちらが
まず驚き先方の申し込みを待つ
べきかを決めるべきだと
思ったが、
二日目に
来ると
ヘンリイ氏は
ヘンリイ氏の
ヘンリイ氏の
ヘンリイ氏の

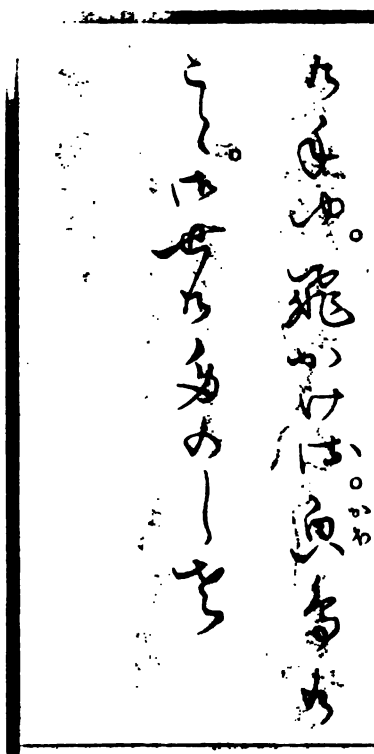
時に使ふ、

ニ十七年の調査では、車十万台に対して死者数は一万人を超えていました。



同

家ヲハヒヨホハカ造立セサレハソレヲ
造立スル所ノ人々ハ無益ニ勞
ス都府ヲハヒヨホハカ守護セサ
レハソレヲ守護スル所ノ人ハ無
益ニ夜ヲ明ス
汝等カ苦勞ノハンヲ喰ツヽ早ク
起テ而メロノ晩ク寐ハ無益



等ノ魂ヲ流メントラン

彼等ノ歯牙ノ浮物トテ我等ヲ捨サリシ所ノエホハハ愛称セラレンヲ吾カ願ヲ我等ノ魂ハ禽鳥ノ如ク捕鳥者ノ網ヨリ逃キ網ハ裂ケ而メ我等ハ逃キ」天地ノ造物者ナルエホハノ名ハ我等ノ便ナリ

蒸気は水を蒸して變じたものである。

蒸気は目に見えないが、水と同じく重さがある。

蒸気は水に溶けるが、溶ける量は水の温度が高いほど多い。

蒸気は空気中にも溶ける。溶ける量は温度が高いほど多い。

蒸気は空気よりも軽い。

蒸気は空気中に溶けて、雲となり雨となる。

蒸気は冷えると水となる。

蒸気は物体に触れると熱を与へる。

蒸気は人工によつて水となる。

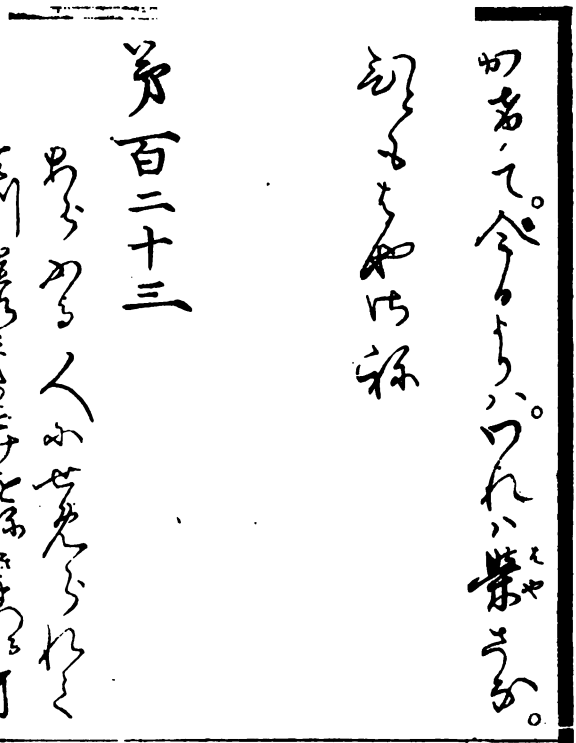
第百二十四

荒如雄ぶ

同

イスラエルヲシテ去ハセシメヨ人ミカ我等ニ逆テ發起セル時ニエホハノ意味ハ非レハ其時彼等ノ怒リカ我等ニ逆發セレ時ニ彼等カ我等ヲ生呑ヒ其時ニ水カ我等ノ溺セヨニ川カ我等ノ魂ヲ沈セヨ傲慢ニ溢レル水カ

僕等ノ目ハ彼等ノ主君ノ手ヘ
向フ如ク婢ノ目ハ彼レノ主母ノ手ヘ
向フ如ク其如ク我等ノ目ハ彼レ
上帝ヲ指カ我等ヲ恵ム迄エホハヘ向フ」エホ
ハヨ我等ヲ恵メ我等ヲ恵メヨロ
何トナレハ我等ハ十分ニ軽蔑ヲ
ケキ我等ノ魂ハ驕者ノ悔リト
暴君ノ軽蔑ト十分ニ受ケキ



彼レカ地ヲ人種ニ賜ヒキ」死者又ハ死
境ノ無聲ニ降ル所ノ諸人ハエホハヨ
讃美セス返テ我等ハ今ヨリ後ト
久ニエホハヨ愛称為シトス一ハレルヤ

同

天ノ王床ニ坐スル所ノ汝ニ我
レハ吾カ目ヲ挙ク観ヨヤ

キ彼レハ恵マントス彼レハイスラエル
ノ家族ヲ恵マントシ彼レハアロナノ
家族ヲ恵マントシ彼レハエホハヲ畏
ルヤ所ノ人々長幼共ニ恵マント
シエホハハ汝等ト汝等ノ子供ト
ニ物ヲ益シントス」天地ノ造物
者ナルエホハニテ汝等カ恵ルヽ々
ヲ我カ願フ天ハエホハノ為ノ天ナリ而

[illegible]

ル彼ヲ顧ミ天ハエホバノ道ノ天ナリ徳ノ
本ナラエホバニテ洪善ヲ恵ルハ
ニ善ヲ益シイス」天道ノ造都
ヲエホバハ洪善ト洪善ノ子孫ト
ラナ危ノ人ヲ愛如共ニ恵ミシイ
寡婦ヲ恵ミシイテ彼ノハエホバハヲ畏
ノ寡婦ヲ恵ミシイテ彼ノハトニナ
ヤ彼ノハ恵ミシイス彼ノハイスラエル

[illegible]

指ナリ「エホバハ汝等ヲ心ニ離ル
エホバヲ頼ヨ 彼ハ彼等ノ便ト
ナリ エホバヲ畏ルヽ所ノ人々ヨ
頼ヨ 彼ハ彼等ノ便ト指
ナリ アロンノ家族ヨ エホバハ
ヲ指 上帯 彼等 入ヲシテ ノ便ト指
イスラエルヨ エホバヲ頼ヨ 彼ノ
華ノ如シニ放テ

ぬりつまよ。て帰わうてろ。大名之。
めろひ稼ける。をく人それるるひ
ま者。仰ゆよめかうても移置
も。八中掛乃らき記てもか楯者。
めぬ祝りるをを載うてめを
奉こハうぬ。をそれいよめも移
こうも。や老ろ善人そうも書お

等ノ如クニ成ル

イスラエルヲ上帝ヲ指ス

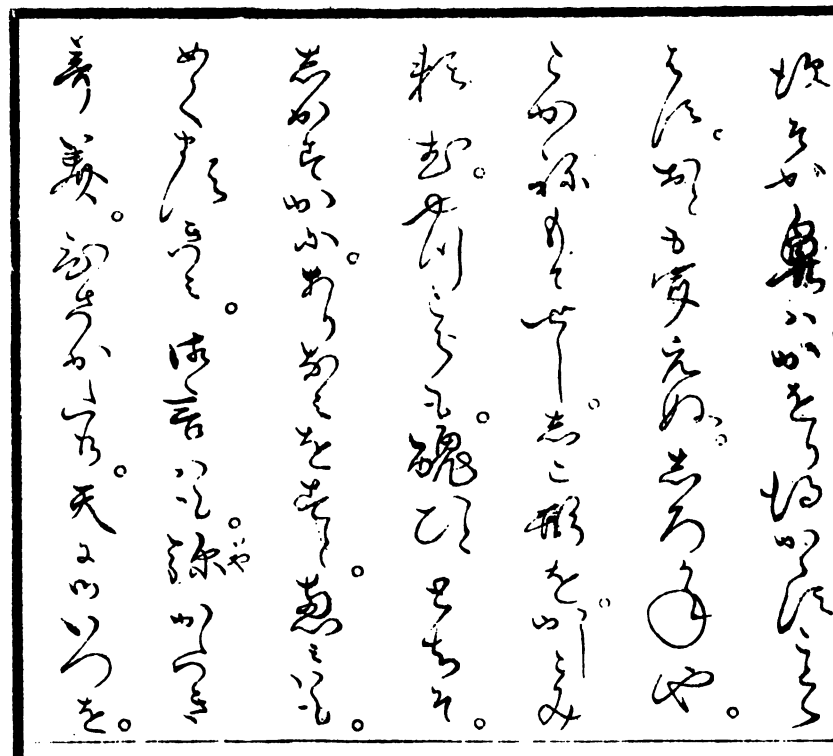
エホハヲ頼ヨ彼レ彼等（イスラエル人ヲ云フ）ノ便ト楯ナリアロナノ家族ヨ

エホハヲ頼ヨ彼レハ彼等ノ便ト楯ナリ

エホハヲ畏ル々所ノ人々ヨ

エホハヲ頼ヨ彼レハ彼等ノ便ト楯ナリ」

エホハハ我等ヲ心ニ懸ケ

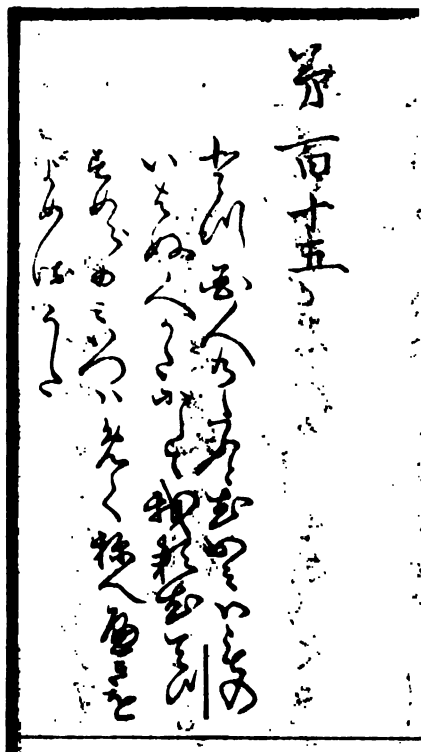


彼等ハ口ヲ持テモ語ラス彼等ハ目ヲ持テモ見ス彼等ハ耳ヲ持テモ聞カス彼等ハ鼻ヲ持テモ嗅カス彼等ノ手ハ彼等カ以テ觸レス彼等ノ足ハ彼等カ以テ歩行ス彼等ハ彼等ノ咽候ヲ以テ語ラス彼等ヲ作リ彼等ヲ頼ム所ノ各ノ人ハ彼

十數金ノ代人ニ與ヘ申候ハ
未ノ冬ヨリ午ノ夏迄ニ
何ノ何ノ
天ニ御座候ハ
一圓ニ付
二ツ宛ニ
一ツ宛ニ

御業いてたこころみ。
るゆゑ。多きおかれそ。
人の遠伏をそ。
そいことをひめて。
ものもはえへて。
銭はうえて。
鍮わしそ。

波ノ真實ノ為ニ波ノ名ヲ譽
譽ヲ與ヨ他國ノ人
ハ何故ニ云ハン今彼等
ノ上帝ハ何國ニ在ルト然ニテ
我等ノ上帝ハ天ニ在彼レノ指
ノ彼スル所ノ何ニテモ彼レカ
夫レヲ行ナフ返テ彼等
ノ神違ヒ人作ノ金銀ナリ



第百十五

ハ若羊ノ如ク飛フ」地ヨ岩ヲ
水ノ池ニ化シ堅キ岩ヲ泉ニ
化スル所ノエホハ則チヤマフノ
上帝ノ面前ニ震懼セヨ

同

エホハヨ我等ニ榮譽ヲ給ハス我
等ニ榮譽ヲ給ハス汝ノ恩惠ト

ト雖モ其ノ効果ニ於テハ業務ニ合ハス故ニ業務ニ合ハス

同

業務ニ合ハサル器具ノ例

一　漁業ニ於ケル網ノ如キ

二　染物ニ於ケル木灰ノ如キ

三　水車ニ於ケル羽ノ如キ

四　精米業ニ於ケル臼ノ如キ

五　鍛冶業ニ於ケル鞴ノ如キ

六　鋳物業ニ於ケル炉ノ如キ

七　製糸業ニ於ケル繰糸釜ノ如キ

八　醸造業ニ於ケル桶ノ如キ

九　製茶業ニ於ケル焙炉ノ如キ

十　製紙業ニ於ケル漉桁ノ如キ

十一　製陶業ニ於ケル窯ノ如キ

十二　製瓦業ニ於ケル窯ノ如キ

十三　製煉瓦業ニ於ケル窯ノ如キ

十四　製石灰業ニ於ケル窯ノ如キ

十五　製炭業ニ於ケル窯ノ如キ

十六　製塩業ニ於ケル釜ノ如キ

十七　製油業ニ於ケル搾機ノ如キ

十八　製粉業ニ於ケル石臼ノ如キ

十九　製麺業ニ於ケル麺棒ノ如キ

二十　製菓業ニ於ケル型ノ如キ

二十一　製氷業ニ於ケル氷庫ノ如キ

二十二　製冷業ニ於ケル冷庫ノ如キ

二十三　製乳業ニ於ケル搾乳機ノ如キ

二十四　製酪業ニ於ケル攪乳機ノ如キ

二十五　製バター業ニ於ケル攪乳機ノ如キ

二十六　製チーズ業ニ於ケル攪乳機ノ如キ

二十七　製アイスクリーム業ニ於ケル攪乳機ノ如キ

二十八　製ヨーグルト業ニ於ケル攪乳機ノ如キ

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九十八　製ケフィア業ニ於ケル攪乳機ノ如キ

九十九　製クミス業ニ於ケル攪乳機ノ如キ

百　製ヨーグルト業ニ於ケル攪乳機ノ如キ

同

イスラエルカエシフトヲ出テ

ヤコフノ家族カ異言ノ國ヲ

出シ時ニ其時ニユダヤ彼レ

上帝ヲ指次ノ彼モ同シ

ノ聖所ト成リイス

メテイル。上ホニ鏡ヲ懸ケ、其下ニ人ヲ交ヘテ坐ス。

帝王交ヘテ人ヲ坐ス

ル者ハ、其ノ人ノ為ス所ヲ、鏡ニ照シテ見ルガ如シ。

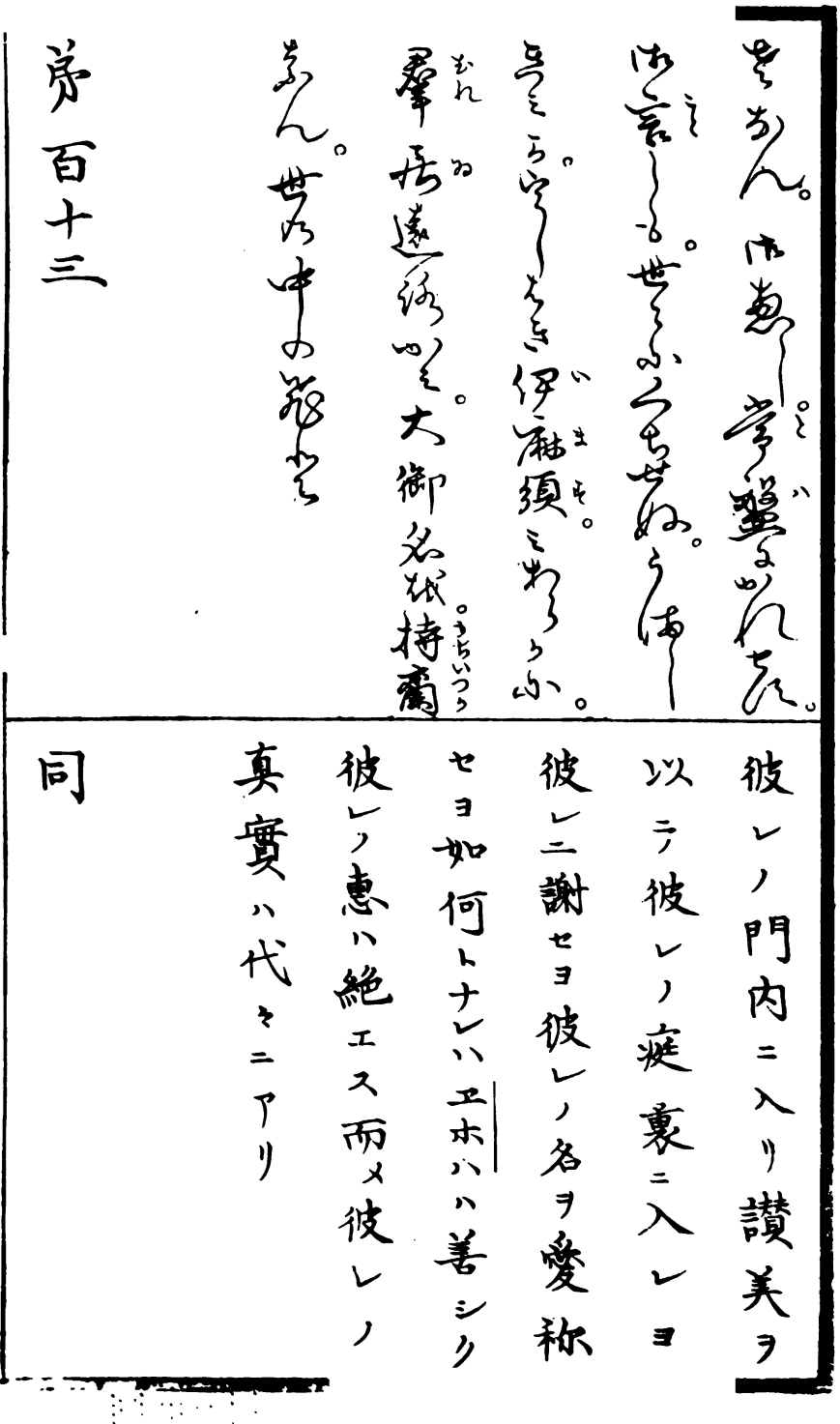
ル者ハ、其ノ人ノ為ス所ヲ、鏡ニ照シテ見ルガ如シ。

鏡ノ為ニ照ス

ル者ハ、其ノ人ノ為ス所ヲ、鏡ニ照シテ見ルガ如シ。

玉床ニ痺レテ天地ヲ遥ニ見下レ彼レ（下ニ云卑人貧人ナリ）ヲ貴族則チ彼レノ國（天国ヲ云ヘリ）ノ貴族ニ並ヘンカ為ニ塵埃ヨリ卑人ヲ挙ケ灰堆ヨリ貧人ヲ掲ケ童児ノ嬉シキ母トテ娠マサル女ヲシテ家ヲ持ツ人ト成ラシムル我上帝ナル エホハニ誰カ似ルハレルヤ

天津皇
掛巻も畏き天津皇
つかへまつりて大御名を
よろづよ
夕日の
ハレルヤ（イスラエルノ語ニシテ上帝ヲ愛
称セヨトノ意ヲ含メリ）
エホハノ僕ヨエホハノ名ヲ
讃美セヨ、讃美セヨ今ヨリ
後永久ニエホハノ名ハ愛
称センヲ我カ願フ日ノ出ルヨリ
其入ル迄エホハノ名ハ讃美為
ヘレ」エホハハ萬國ノ上ニ秀テ
彼レノ榮譽ハ天ノ上ニ秀ツ



彼レノ門内ニ入リ讃美ヲ
以テ彼レノ庭裏ニ入レヨ
彼レニ謝セヨ彼レノ名ヲ愛称
セヨ如何トナレハエホハ善シ
彼レノ恵ハ絶エス而メ彼レノ
真實ハ代々ニアリ

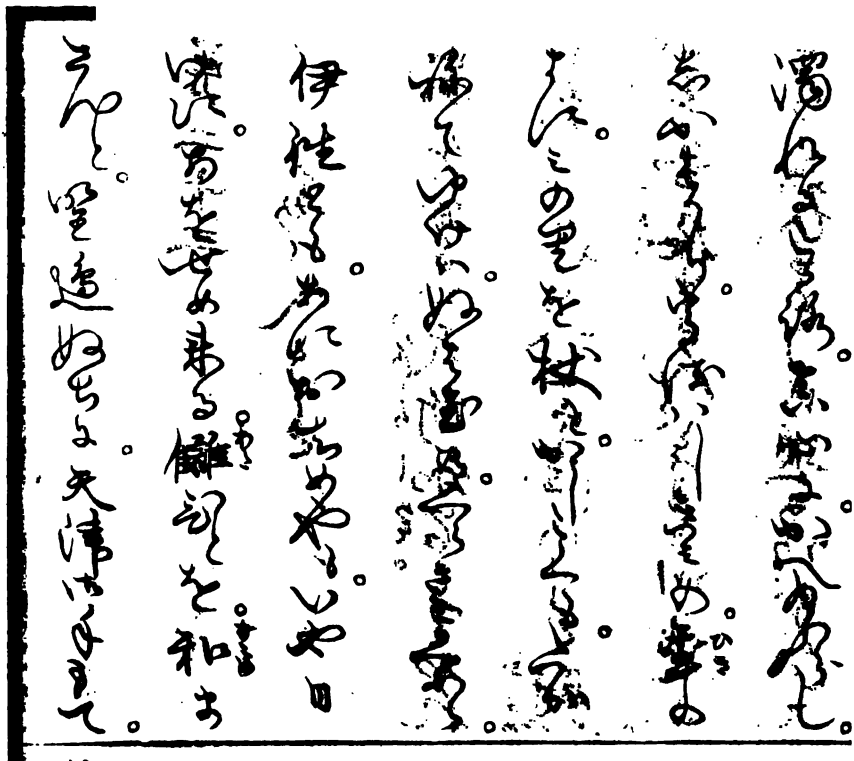
同

諸國ヨヱホハニ向テ歓聲
ヲ出セ欣喜ヲ以テヱホハ
仕ヘヨ高興ヲ以テ彼レノ
前ニ来レヱホハハ上帝ナリト
兼知セヨ彼レカ我等ヲ作リ
而メ我等カ彼レノ物彼
レノ民而メ彼レノ牧場ノ
羣羊ナリ」謝禮ヲ以テ

頂ヘヲ潤シ而メ吾盃ヲ満ツ

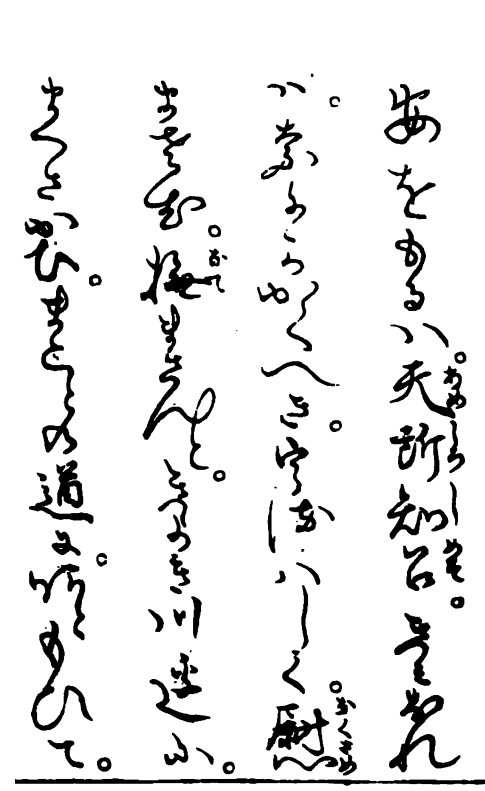
吾一生涯幸ト恵ト而已我ニ及ントシ而メ我ハ又永久ニ四ハハノ家ニ住ントス

同



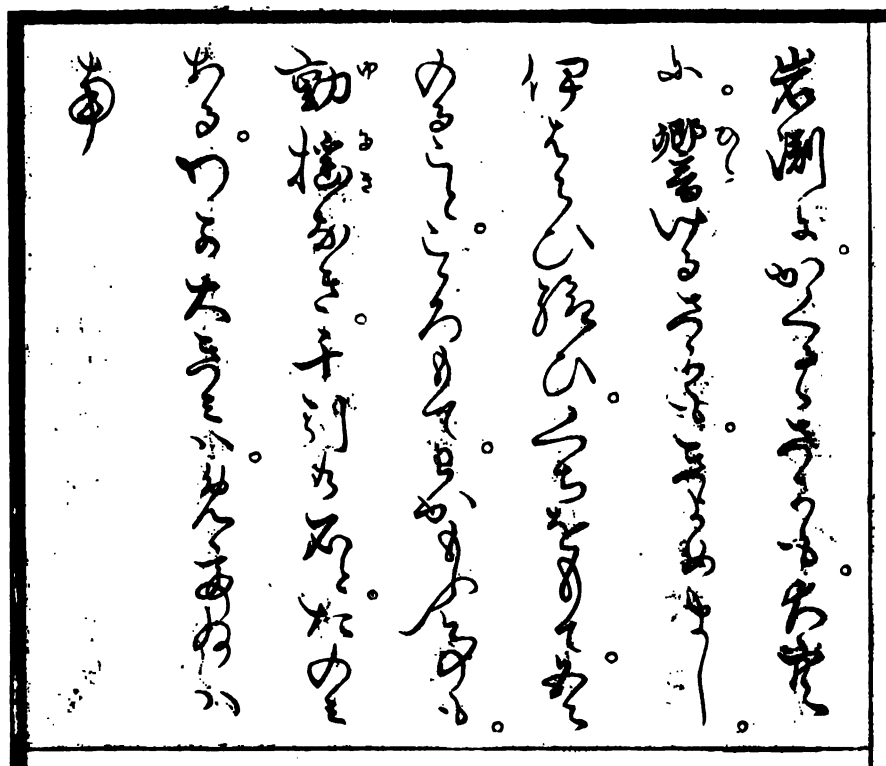
道ヲ率ヰ」然レハ我カ死陰ノ谷ヲ歩行トモ我カ何レノ事ニヲモ忙シトセス如何ト
ナレハ汝上帝ノ指ハ我ト共ニアリ汝カ指揮杖ト汝カ杖ト我ヲ慰ム」我ヲ苛酷スル人
ノ眼前ニ汝ハ我ニ向テ、
崖ヲ設ケ汝ハ油ヲ以テ吾

第二十三



同

エホハハ吾牧者ナリ我ハ不
足セジ彼レカ青草ニ於テ
我ヲシテ卧サシメ彼レカ靜
流ノ傍ニ我ヲ率ヰ彼レ
ノ名ノ為ニ彼レカ吾魂ヲ
改復シ彼レカ我ヲ直キ



司トラヌ様ニ汝ノ僕ヲ驕レル悪ヨリ救ヘヨ然レハ我ハ潔ク而メ大罪ヲ受サラントス」吾カト吾救主ナルエホハヨ吾口ノ言語ト吾心ノ考ヘヲルテ常ニ汝ノ目ニ叶ヒシメヨ

ニ業ノ法ニ準ス（第四回ノ説明ヲ参照）

ナキ処ニ進ミ大勢ニ順フテ変ス

ラント欲スルトキハ其ノ主義ニ違ハサル

ハ其ノ時ノ白地再ヒ墨ト為ルヘシ

ヘシ

ヘシ

文部省の普通学務局は、小学校の教員に対して、毎年一回ずつ、講習会を開くことを命じた。

この講習会は、各府県の師範学校で、夏休みの間に、二週間ほど開かれる。

講師には、その府県の学務課の役人や、師範学校の教師が当たる。

講習の科目は、修身、教育、国語、算術、地理、歴史、理科、図画、唱歌、体操などである。

受講者は、その府県の小学校の教員全員である。

講習会の費用は、府県の教育費から支出される。

講習会の目的は、教員の知識を新しくし、教授の方法を改良することにある。

講習会の成績は、受講者の出席状況と、試験の結果とによって、評価される。

成績の良い者には、賞状が与えられる。

講習会の終了後、受講者は、その府県の教育会に報告書を提出する。

報告書には、講習の内容と、自己の感想とを記すことになっている。

この講習会の制度は、明治十二年に始まった。

当時の小学校の教員は、多くは旧藩士族であって、新しい教育の方法を知らなかった。

そこで、文部省は、師範学校の卒業生を各地に派遣して、講習会を開かせることにしたのである。

講習会の講師には、師範学校の卒業生が当たることが多かった。

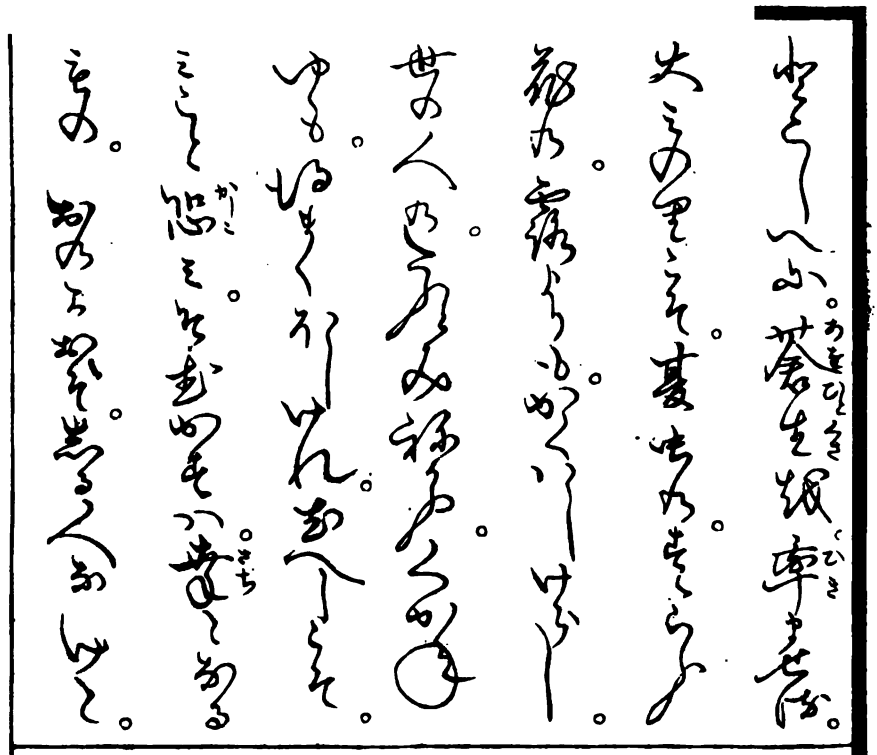
講習会の開催は、年々増加して、明治二十年には、全国で百回以上に達した。

講習会の費用は、府県の財政を圧迫するほどであった。

そのため、明治二十三年には、講習会の回数を減らすことが、文部省から各府県に通達された。

講習会の制度は、その後も、形を変えながら、長く続いた。

現在の教員研修の制度は、この講習会の制度に、その源を発するものである。

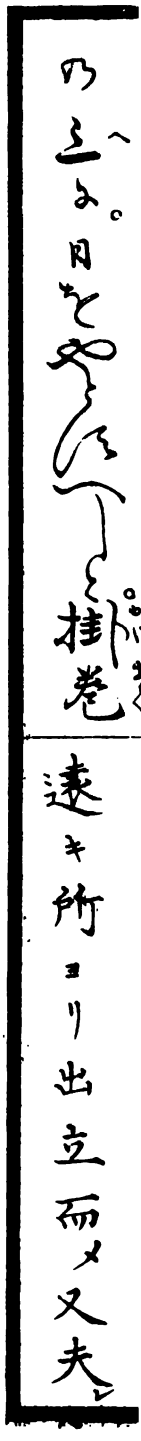


ト蜂房ヨリモ甘シ將又
汝ノ僕（自カラヲ）ハ彼等ニ依テ
教ラル而メ彼等ヲ守ル
事ニ於テ大ナル褒美アリ
彼レカ幾度犯法スルヲ誰
レ知ル能ハ汝上帝ヲ指ヨ我カ
隠レタル咎ヨリ我ヲ清メヨ
又ハ彼等カ（次ニ云ヘル
悪ヲ云ヘリ）我ヲ

而ノ心ヲシテ歓ハシム エホハノ
命令ハ清クアリ而メ目ニ
光ヲ給フエホハノ畏レハ潔
白ナリ而メ永久ニ存ス
エホハノ裁断ハ真ク而メ
金ク並クアリ」彼等ハ法書等ヲ云
金ヨリモ多クノ純金ヨリモ
欲セラルベシ猶更蜂蜜

ノ果迫馳廻リ而メ其曖氣
ヲ以テ萬物ヲ照ラス所ノ大
陽ノ爲ニ彼レカ上帝ヲ指彼等
天ト空トヲ云ニ於テ幕ヲ張キ
エホハノ法ハ魂ヲ改化サスル
潔キ法ナリ エホハノ誓ハ確
定ナリ而メ愚人ニ知識ヲ給
フ エホハノ掟ハ正シクアリ

ノ果迫馳廻リ而メ其暖氣
ヲ以テ萬物ヲ照ラス所ノ大
陽ノ爲ニ彼レカヲ指上帝
天ト空トヲ云ニ於テ幕ヲ張キ
エホハノ法ハ魂ヲ改化サスル
潔キ法ナリ エホハノ誓ハ確
定ナリ而メ愚人ニ知識ヲ給
フエホハノ掟ハ正シクアリ



モ談話モ非ス然レナカラ彼等ノ聲カ彼等ノ間ニ聞ユ」ト彼等ノ音ハ諸國ニ出テ而メ彼等ノ言語ハ世界ノ果迄出ヌ」婚カ彼レノ閨ヲ出ル如ク出テ而メ偉丈夫カ彼レノ競走スル事ヲ喜フ如ク喜ニ夫ノ最モ遠キ所ヨリ出立而メ又夫レ

夫人は、ちょっと、ためらいました。

「出ては、悪い、と、思うのですが、」

と、言いながら、夫人は、園丁の、後から、出ました。

夫人は、園丁の、後から、出ました。

「出ては、悪い、と、思うのですが、」

と、言いながら、夫人は、園丁の、後から、出ました。

夫人は、園丁の、後から、出ました。

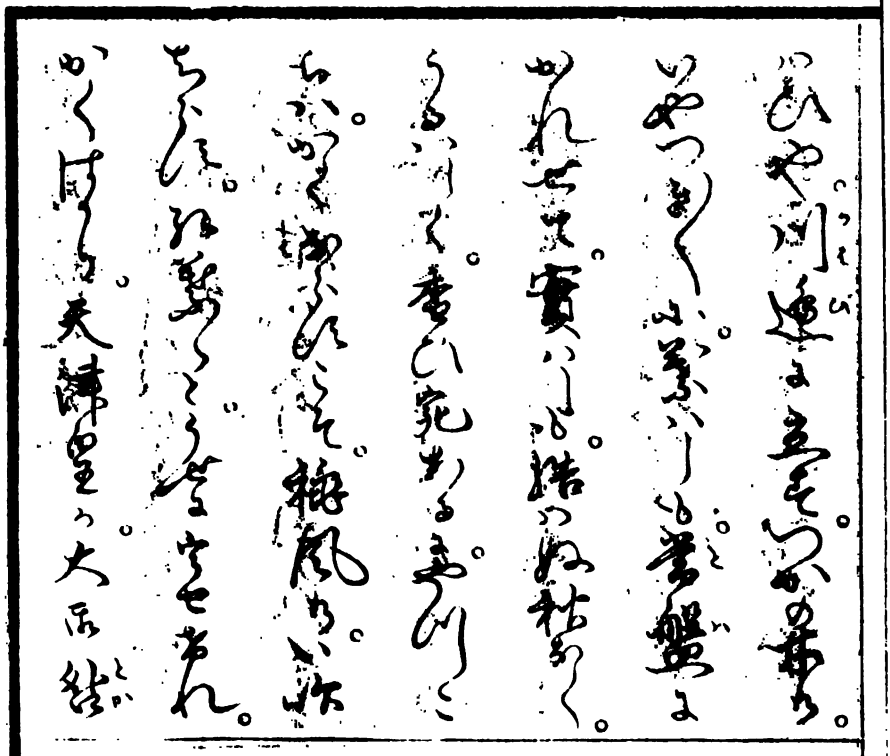
「出ては、悪い、と、思うのですが、」

と、言いながら、夫人は、園丁の、後から、出ました。

返テ不信人ノ道ハ滅亡ス

同

天ハ上帝ノ榮誉ヲ語リ而
空ハ彼レノ手業ヲ言ヒ顯
ハス一日ハ他日ニ言ヒ而
夜ハ他夜ニ信用サス言語



讃歎歌之條

同道譯

Old Testament already in existence were made to conform more closely to the classical Chinese, it could be read with facility by educated Japanese, and if published with a Japanese translation in the same way as the Chinese classics are, would be easily understood by the common people, who by the medium of the popular newspapers, printed in Chinese characters with Japanese characters along-side, were daily becoming more familiar with the Sinico-Japanese style. Such had been the opinion expressed to him by several Japanese with whom he had conversed on the subject.

Dr. Faulds said that there were elements at work tending to raise the colloquial language out of its present degraded state, and that the Japanese were beginning to look on the high Chinese style as rather ridiculous, and to compare scholars of Chinese to those painters who were celebrated for their classical pieces, which no one understood, but who failed miserably when they laid themselves open to general criticism by painting something commonplace and intelligible.

Mr. Blanchet handed in a copy of a "Japanese version of the hundredth Psalm," translated by a committee of missionaries in Sinico-Japanese style. [See next page.]

Mr. Wright asked Mr. Chamberlain whether the plan he advocated was intended to apply to the translation of the Psalms for actual use by Japanese converts to Christianity?

Mr. Chamberlain said that, having already exposed his views at length in the paper now under discussion, he would not take up more than a few moments of the meeting's time. He simply desired to remind Mr. Amerman, who had objected *on principle* to the plan of printing two parallel versions of the Psalms and making one of these versions a poetical parapharase, that in the chief book of one of the chief churches of Christendom,—the English Prayer-Book,—two such versions were given. That the metrical version was in this particular case a very unsatisfactory one, did not affect the argument. He also begged to correct a statement of Mr. Amerman's to the effect that he (Mr. Chamberlain) had denied the existence of any serious works in Sinico-Japanese, and observed that, after all, the distinction between Sinico-Japanese and the *Chiyoku-yaku* style which he had advocated, was not essential. If, as Mr. Satow seemed to think, the existing Chinese versions of the Scriptures are those which are most likely to suit the taste of Japanese readers, then we may find pleasure in the thought that the labour of translation is already accomplished. If, on the contrary, the colloquial, when it shall have been rendered fit for literary purposes, is to be the medium, then in all probability no person now living will survive to see the result. No one would hail with greater delight than himself the substitution of one common easily understood language for the present cumbrous system according to which the Japanese write in a manner different to that in which they speak. But the versions in his paper had been made with a view,—not to a distant

ANCIENT SEPULCHRAL MOUNDS IN KAUDZUKE.

By Ernest Satow.

[*Read April 13, 1880.*]

A great impulse has lately been given to the study of archæology in this country by the important discoveries of Prof. Ed. Morse in the shell-heaps at Ohomori[1] and elsewhere, by the publication of Mr. Von Siebold's "Notes on Japanese Archæology," full of interesting facts and valuable illustrations, and still more recently by the researches of Mr. John Milne in Yezo, which have formed the subject of a paper already presented by him to this Society.[2] Fresh helps to the study of this subject may be daily looked for, and every additional scrap of information is worth collecting. It is with this conviction that I venture to offer to the society a few notes on some prehistoric burial-mounds in the province of Kaudzuke which were opened about two years back, as well as on the ancient pottery and other articles discovered in them and at one or two neighbouring places.

Whoever has travelled in the province of Yamato cannot fail to have visited some of the remarkable circular tumuli, often surrounded by moats, under which lie the remains of the early sovereigns of this country. In Kaudzuke, also, there are numerous circular burial-mounds, and in the course of an hour's ramble in the neighbourhood of the village of Ohomuro on the occasion of a recent visit, I counted at least six undoubted ones, three of which have been already opened, besides as many more of similar shape that will probably turn out on examination to be of the same character. None of those that had been opened,

[1] See "Memoirs of the Science Dept., University of Tokio, 1879, vol. i, pt. 1.

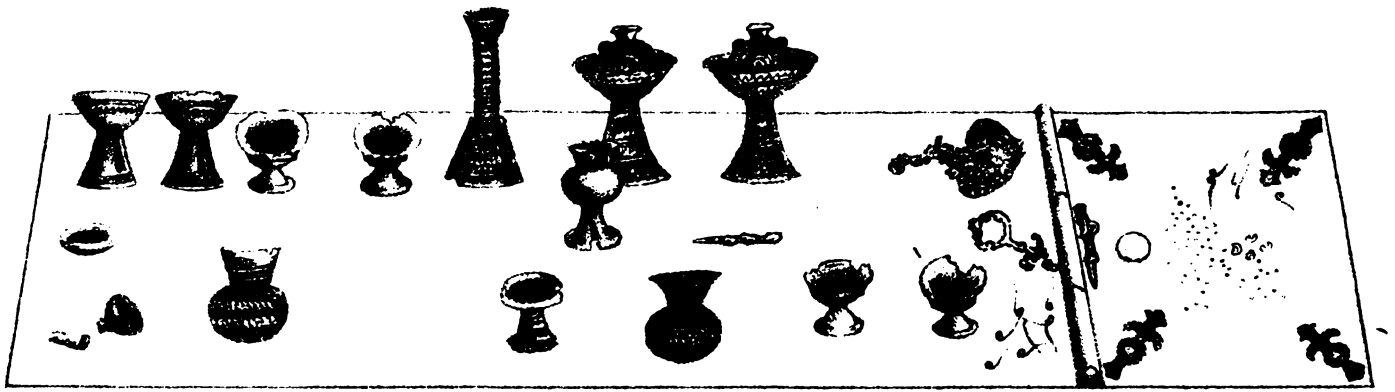
[2] Transactions, vol. viii., pt. 1.

as far as I could ascertain, were known to have yielded any relics of antiquity, but then one of them, the largest, was opened so long ago that all memory of the event has been lost. In this province the circular mounds appear to have been reserved for persons of inferior rank, and the great finds of pottery and other articles have been made in tumuli of another form. These are situated in the villages of Ohoya and Ohomuro,[8] two in the former, three in the latter village. Of the two at Ohoya, one was opened about 60 years ago, and the last survivor of those who had a hand in its demolition died three years back. It yielded, besides a circular mirror hung with small bells and one so-called *maga-tama*, several very curious pieces of pottery, which will be described further on. The second was opened in 1878. Of the three at Ohomuro two only have been opened, and it was from one of these that a large and varied assemblage of extremely characteristic pottery was obtained, besides iron weapons, articles of bronze and blue glass beads.

The general shape of these mounds is best shown by the accompanying sketch of one of them. They are in fact double mounds, and are therefore popularly called *Futa-go yama* or Twin-hills. A line drawn from end to end would run nearly from east to west. The west end is square, the eastern being round. While the latter contained the tomb, with the corpse lying north and south, the former is supposed to have been the quarter from which reverence was paid to the dead by the presentation of offerings. About the middle there is a slight contraction, to which a depression in the connecting ridge corresponds. Each mound seems to have been originally built up in three tiers, though the outlines have been obliterated in the course of ages by the growth of vegetation and the action of wind and rain. On the top of each tier was a fence formed of a row of terra cotta pipes about two feet high, connected by wooden poles or bamboos passed through holes about half-way from the base. Of these three mounds those which lie on the north and south have a single surrounding moat, but the central one had once a double moat, traces of which are still easily distinguished. Several small circular mounds are dotted irregularly about the immediate vicinity, but as these

[8] About 7 miles E. of Mahebashi, the capital of the Guñ-ba prefecture, and 5 miles N. of Iseзaki on the high-road from Tou-kiyau to that town.

U of M



have not yet been examined it is impossible to say whether they are in any way connected with the principal mounds, as being, for instance, the burial-places of retainers. It may perhaps be that the double-moated tumulus covers the tomb of a personage of still higher rank than either of the others, and when it comes to be opened may be expected to yield an even larger collection of relics.

For convenience' sake I will begin with the southernmost mound. Its greatest height is 86 feet, its length 372 feet and width 284 feet, according to the official measurement. The tomb is in the circular part at the east end, and opens towards the south, but a little to the east. It is divided into three sections, the outermost of which is a passage 33 feet in length, to which succeeds a sort of sacrificial chapel 24 feet long, and then a chamber 6 feet in depth, which is supposed to have contained the coffin. The height throughout is rather over 6 feet, and the width, beginning with about 3 feet at the entrance, gradually increases to about 4½ feet at the further end. No exact measurements are possible, because the stones of which the walls and roof are constructed are rough untrimmed blocks, just in the state in which they were brought from the quarries on the hill-side in the neighbourhood. The size of these blocks is considerable. Those in the roof of the outer passage must be at least 5 feet long, and as there are 8 of them, must average over 4 feet in width. This part of the tomb was filled up with loose stones and earth, and at its further end were two large slabs which closed the entrance to the interior. The sacrificial chapel was divided from the coffin chamber by a low sill of stone. When the mound was first opened the interior of the tomb was found filled half-way to the roof with fine dust, which had evidently accumulated during the lapse of centuries by falling through the crevices between the stone slabs overhead. On removing this there were discovered in the outer compartment seventeen pieces of pottery, part of a bronze head-piece for a horse, a bronze stirrup in fragments, an iron spear-head, a quantity of iron arrow-heads and some bits of iron chain. In the innermost compartment were found about three hundred beads of blue glass, a small gold ring (Fig. 29), a circular bronze mirror 4¾ inches in diameter, an iron spear-head, some iron hooks and bits of chain, and four ornaments in bronze, much broken, lying in the four corners. Mr. Atkinson has kindly analyzed some fragments

of the beads, and states that they appear to consist of a silicate of potash and lime, containing some ferrous silicate and coloured with oxide of cobalt. The glass contains no lead, and its specific gravity is low—2.38. The iron was almost entirely converted into rust, and the bronze articles had also rusted considerably, with the exception of the mirror, which appears to have suffered little. The floor was covered with a quantity of reddish dust, some of which I brought away. It has been found by Mr. Atkinson to consist mainly of red oxide of iron, with very slight traces of phosphoric acid and lime. It is supposed that the body, together with a necklace formed of these beads, the ring and the mirror, was enclosed in a wooden coffin filled with red oxide of iron (known to the Japanese as *benigara*); and that the coffin was then suspended from the roof by the iron hooks and chains of which fragments were found lying on the floor. The four bronze halberd-shaped ornaments were perhaps fixed on the end of staves, and placed upright in the four corners. In the course of time the body, burial clothing and wood of the coffin evidently decayed, while the imperishable contents fell to the bottom of the tomb. The hooks and chains were eaten through by rust, and gave way, some falling outside the sill, the rest within. This must have happened before the dust began to find its way through the crevices of the roof. If the coffin were made of *maki* (Podocarpus macrophylla) as we learn from the Ni-hoñ-gi was the practice in early times, it would have a good chance of lasting twenty or thirty years, before falling to pieces, as this is one of the most durable kinds of wood grown in Japan.

The pottery discovered in the interior of the tomb was mainly of two sorts, one being blackish grey, thick and extremely hard, the other red, inclining to pink, thin and comparatively soft. A third, which may be called *terra cotta*, probably made from a somewhat coarser clay of the same character as the last, was used for the tubular posts of the fences already mentioned. The ornamentation is chiefly of seven kinds: 1st, horizontal parallel ridges and grooves at regular distances; 2nd, angular wave-lines or zigzags impressed on the paste by means of a comb with from two to seven teeth; 3rd, a pattern made by cutting shallow notches with a knife in a direction inclined from the axis of the article and then impressing a row of blunt points on the left hand side of the notch; 4th,

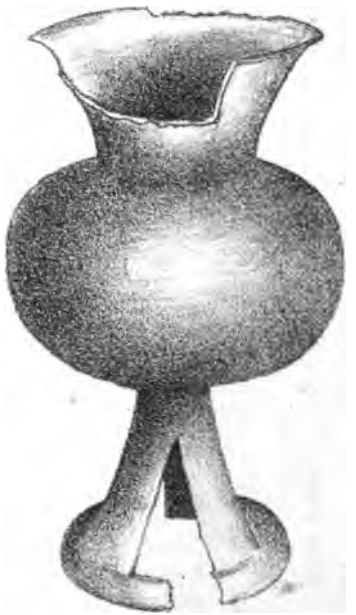


FIG. 1

FIG. 2

irregular designs produced by parallel strokes made with a blunt point, which are crossed by other strokes only slightly differing in direction or by strokes at right angles, the effect being in some cases a resemblance to the impression of a coarse kind of cloth; 5th, curved strokes made without any particular intention, crossing each other in an irregular manner; 6th, concentric circular incised lines; 7th, small buttons or bosses of clay; and lastly, square, triangular and round holes made through the bases of vessels. The terra cotta pieces have their surfaces generally covered with parallel striæ in the direction of their length, made with some article of the nature of a brush.

I shall now proceed to describe the contents of the first tumulus in detail.[4]

No. 1.

Of common red clay, without any glaze, made with the wheel. In the base two triangular apertures, cut out of the soft paste with a knife. One side was partly blackened, apparently with lamp-black.

	INCHES.[5]
Height	11.94
Diam. of mouth	6.18
" " throat	4.05
" " globe	7.78
" " top of base	2.91
" " foot of base	6.86

No. 2.

Brown clay inclining to pale red, the fractures black. Distinct marks of the wheel on the inside of the bowl. Underneath the rim on the outside runs a zigzag pattern made with seven points, then two grooves, another zigzag mark, and then the latticed pattern made with a blunt point. The zigzags are repeated on each of the four sections of the base.

[4] See the illustrations.

[5] These measures were taken in Japanese inches and afterwards converted into English measure by multiplying by 1.19. The 2nd decimal cannot be depended on for exactness.

	INCHES.
Height	15.6
Diam. of bowl	14.28
Height of base	10.71
Diam. of top of base	4.28
" of foot of base	10.82

No. 3.

A kind of flat circular jar of dark brown clay, with concentric circles incised on the front side, the back quite plain. Apparently intended to be hung against a wall by cords passed through its two ears, but discovered resting upright in the bowl of No. 2.

	INCHES.
Diam.	10.11
From back to front	5.71
Diam. of mouth	2.73
Height of neck	1.43

No. 4.

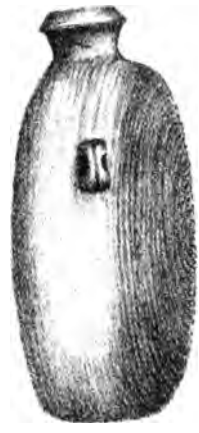
This resembles No. 2 very closely, almost the only difference being that the base has one section less. The bottom of the interior of the bowl is covered with curved lines made with a broad point. The lip of the bowl has zigzag ornaments made with two points only. On the bottom of the bowl are two sets of parallel straight lines crossing each other at an acute angle. Colour and material the same as No. 2.

	INCHES.
Height	14.99
Height of base	10.11
Diam. of bowl	14.28
" " foot	12.14
" " top of base	4.46

No. 5.

A flat circular jar like No. 3, with a wider neck, slightly inclined to one side, and the zigzag mark under the lip. This was found resting in No. 4.

FIG. 3



SIDE VIEW OF FIG 3

FIG. 4

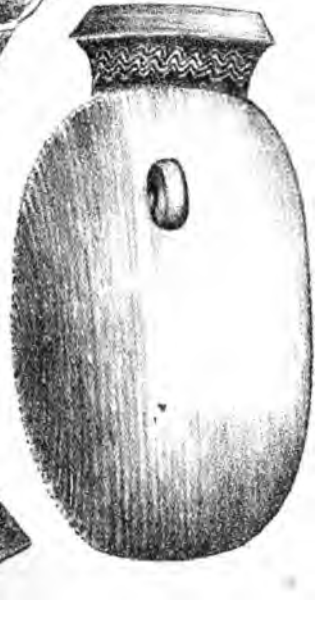


FIG. 5

U or M

FIG. 6

No. 6.

A tall column surmounted by a small basin, in the bottom of which is a hole 1.5 in. diameter. To what purpose this was applied can only be a matter of conjecture. It is possible that it held a staff to which were attached streamers of cloth, representing the *aratahe* and *nigitahe* frequently mentioned among offerings made to the gods. Colour generally dark brown, but the base has apparently been coloured with red oxide of iron. The bowl has distinct marks of the potter's wheel. The ornamentation consists of the zigzag pattern on the outside of the bowl, and on each section of the columns and base, besides small buttons or bosses on the bands which divide the six sections of the column. The upper edge of the base has the pattern made with the knife and blunt points, and is further decorated with four small images which appear to represent a bird, a fish, a frog and a mouse. There is space for one more, which has been lost. Each of the upper five sections of the column has two rows of zigzag marks, the bottom section only one. The bell-shaped base has one row of zigzags in the upper section, two each in the second and third sections, and one in the bottom section. All made with a five-toothed comb.

	INCHES.
Height of bowl	2.86
" " column	12.02
" " base	8.69
Total height	23.57
Diam. of bowl	7.73
" " top of column	4.28
" " bottom of column	3.45
" " top of base	5.06
" " bottom of base	11.66

No. 7.

A wide-mouthed vase of blackish grey clay, with traces of colouring with red oxide of iron. Ornamentation on the neck, three closely united rows of zigzags made with a five-toothed comb; on the globe, two rows of the pattern made with the knife and blunt points.

	INCHES.
Height	9.28
Diam. of mouth	5.47
" " globe	7.5
" " throat	3.57
Height of globe	5.36

No. 8.

A tazza of brown clay, no colouring, with three triangular apertures in the base, formed with curvilinear sides. Zigzag mark on the bowl formed by a three-toothed comb.

	INCHES.
Height	5.12
" of base	3.21
Diam. of bowl	3.98
" " foot	3.39
" " throat	1.43

Three of these vessels were found, one of them broken into two pieces.

No. 9.

A vase of brown clay, with a round bottom, so that it does not readily stand upright. The whole of the neck is covered with the zigzag pattern, and round the middle of the globe runs a band with the pattern made by the knife and blunt points. In this band there is a carefully formed round aperture, but no traces are visible of a spout having at any time been attached.

	INCHES.
Height	5.38
" of globe	2.8
Diam. of mouth	5.71
" " globe	4.4
" " throat	2.8

No. 10.

A tazza of brown clay similar to No. 8, with truncated triangular apertures in the base.

	INCHES.
Height	5.95
Diameter.	5.83

FIG. 7

FIG. 8

FIG. 9

FIG. 10

FIG. 11

FIG. 12

FIG. 13

FIG. 18

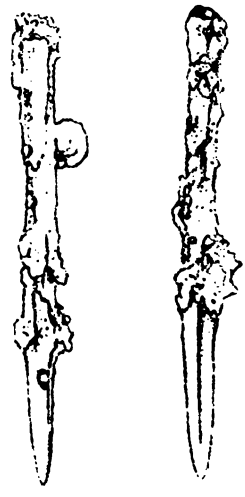


FIG. 17

FIG 16

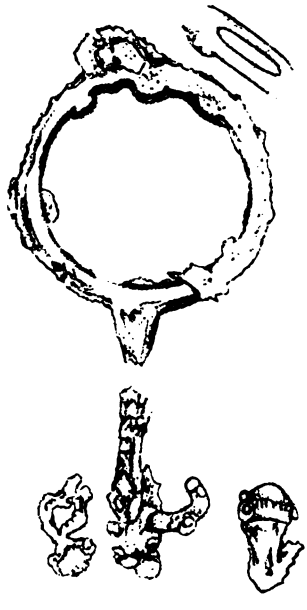


FIG 15

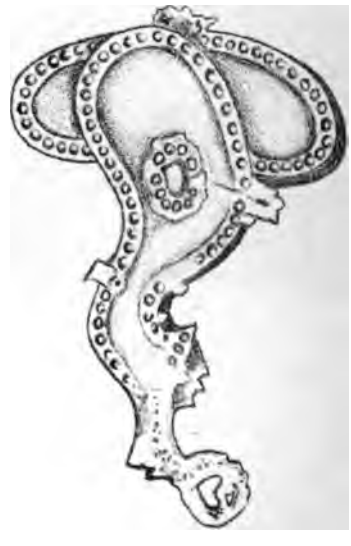


FIG. 14

FIG. 19

No. 11.

A tazza of red clay, without ornament.

	INCHES.
Height	5.85
Diam. of bowl	7.38
" " foot	5.24

A pair of these were found.

No. 12.

Similar tazza of smaller dimensions.

	INCHES.
Height	5.12
Diam. of bowl	6.48
" " foot	5.24

There were a pair of these.

No. 13.

A saucer of red clay, with perpendicular sides; no ornament.

	INCHES.
Diameter	4.64
Height	1.78

No. 14.

Bronze cheek-piece for the head-stall of a horse, composed of a horizontal plate 13in. in length, and a vertical plate 8¾ in. high, with a double edging ornamented with small circular bosses.

No. 15.

Stirrup-iron, consisting of a circular ring for the foot, 6 inches diameter, and a straight piece by which it was suspended 10 in. long, much rusted and broken into four pieces.

Nos. 16 and 17.

Two iron spear-heads, each about a foot in length, much rusted.

No. 18.

Halberd-shaped ornament of bronze plates, with double edging ornamented with small bosses about 17 in. long. There were four of these, all in a more or less corroded and broken condition.

No. 19.

Fragment of a human head in red clay, found buried in the earth at the base of the tumulus. Full size.

No. 20.

Hand-made tubular post of terra-cotta dug up at the base of the tumulus. The upper part, above the hole through which a bamboo or wooden pole was passed, has been broken off. Surface covered with close longitudinal marks of a coarse brush.

	INCHES.
Height to edge of hole	11.54
Diameter	6 to 6.55

No. 21.

Is a similar corner-post, which apparently terminated in a knob. Of rough terra cotta, without marks of the brush, hand-made. This was found at one of the tumuli, but I was unable to ascertain which.

	INCHES.
Height	14.28
Diameter	4.64 to 6

It would be easy to obtain more by digging, as the ground seems to yield fragments of these posts whenever disturbed.

The central tumulus, as I have already stated, has not yet been opened.

The northern tumulus, when opened, was found to contain a single chamber about 21 feet deep, 5 ft. wide at the entrance, increasing to 9 ft. at the back, and a little over 6 ft. high, built of the same huge uncut blocks as that already described. The roof is formed by five of these. The longest block measures 7 feet by 5, and 2 ft. is apparently the average thickness. The opening bears S.W. by S. Nothing was found in this tomb but a few human teeth, a fragment or two of bone, a quantity of iron arrow-heads (see Fig. 22-4) and rings of different sizes, some of iron, others of silver-plated bronze.

Among the miscellaneous pieces of pottery in the collection obtained from these tumuli is a curious fragment, which has an ornament on the inner side formed of circles and curves drawn in the clay with a blunt point, and usually considered to be characteristic of ancient Korean pottery. The outer side has a pattern similar to what has already been described as found on the specimens figured as Nos. 2 and 4, and which is apparently formed of series of parallel depressed lines or grooves made with a blunt point, and crossing each other at a very acute angle,

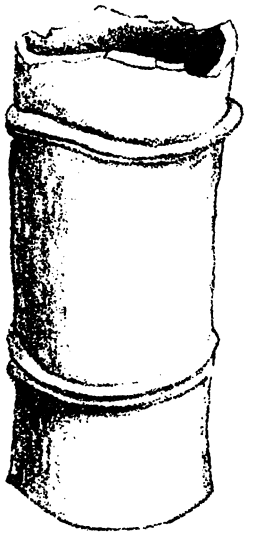


FIG. 20

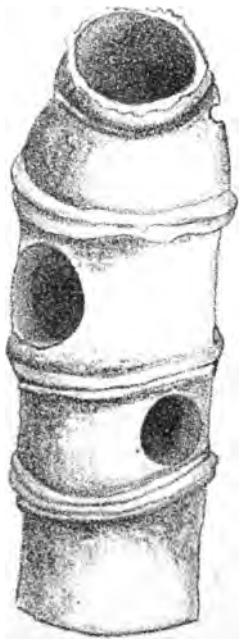


FIG. 21

FIG. 22–4

FIG. 27

FIG. 25

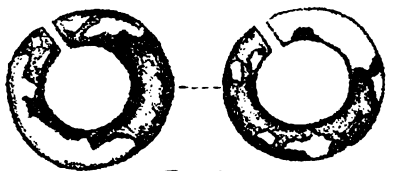


FIG. 26

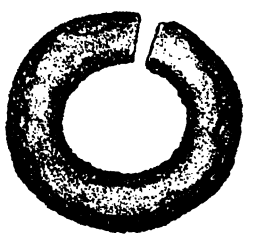


FIG. 28

but sometimes at a right angle. The exact spot where this bit was discovered was not known, but I was informed that it had been found in digging over a field somewhere in the village. Drawings of both surfaces after rubbings are given in Fig. 38.

At the adjacent village of Ohoya, behind a Shiñ-tau temple called Sañ-tai zhiñ-zhiya, dedicated to the goddess Ko-no-hana-saku-ya hime, is a fourth double tumulus with five attendant circular mounds close by. This tumulus was the first to be opened. The tomb consists of a single chamber, about 6 ft. wide 7 high and 16 deep. The roof is formed of three large blocks, each of which must measure about ten feet by four. No pottery was discovered in it, but it yielded several sword-blades, numerous arrow-heads and ten rings. Some of the latter were of iron covered with bronze (see Fig. 25), others of bronze gilt (see Fig. 26), others again of bronze without any trace of precious metal (Fig. 27), some of bronze with a coating of silver.

On the south side of the same temple are the remains of a double tumulus which was opened some sixty years ago, when a considerable quantity of relics were found, some of which are still in the possession of Kohito Mamichi, the priest in charge. The stones of the tomb were carried off by some masons to use as building material. I give a list of the principal articles in this small collection.

No. 29 represents a small vase of black clay, somewhat resembling No. 9. It has the neck almost entirely covered with the zigzag ornament, and in the band which surrounds the middle of the globe is a perfectly formed round hole. This vessel is formed so as to stand steadily on its bottom.

	INCHES.
Height	5
" of globe	2.08
Diam. of mouth	5.24
" " globe	4.05
" " throat	1.84

No. 30.

A jar of black clay, resembling Nos. 3 and 5, but differing from them in having the concentric grooves all over it, both front, back and sides. The diameter of its flat back is 7.14 inches and its thickness from

back to front 6.9 inches; diameter of mouth 8.8 inches. It is difficult to decide what was the position which this vessel was intended to assume. It might be hung up by the ears against a wall, or laid flat on the ground, for its mouth is so near the convex front that it could still contain a fair quantity of liquid even in that position, but in either case the ornament at the back would be quite useless. Perhaps it may have been intended to rest in a stand like those found in the 1st tumulus. (See figs. 2 and 4.)

In this tumulus, but outside the tomb, were found the following articles:—

No. 31, the fragment of a vase which, from its rapidly attenuating form, must have been intended to be planted in the ground.

No. 32.

A jar of reddish rough clay, much scratched and apparently pared with a knife. It was probably moulded with the hand, and its walls were then pared to the required degree of thinness. The fractures show a black clay inside, and the red colour is attributed by the owner to long exposure to the weather. It was for some time used as a flower-pot, and a hole was made in the bottom to adapt it to that purpose.

	INCHES.
Height	5.
Diam. of lip	5.95

No. 33.

Large jar of light brown colour inside and outside, with black patches, probably due to irregular action of the fire in the kiln. The neck is much broken, so that the precise form of that part cannot be determined.

	INCHES.
Height	11.9
Diam. of neck inside	6.07

No. 34.

Vase of pale reddish pottery, with a wide flat lip, the lower part broken off. The dotted line shows how rapidly the interior tapers to a point. It probably had a foot like the fragment represented in fig. 27.

But the most interesting piece in this little collection is the bust of a human figure, which was dug out of the same tumulus, and for a time

FIG. 29

FIG. 30

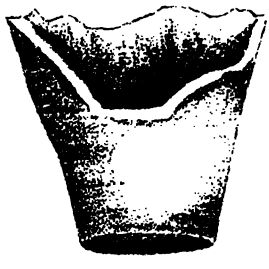


FIG. 31

FIG. 32

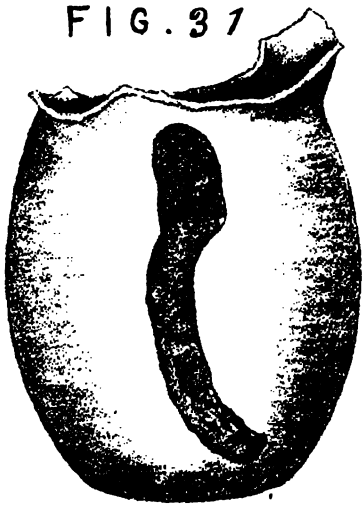


FIG. 33

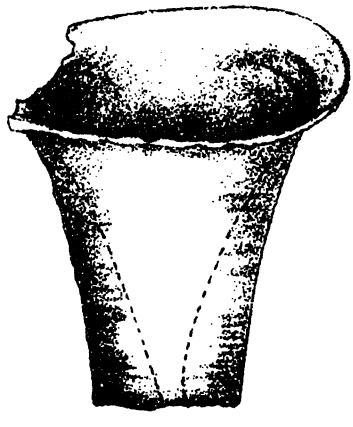


FIG. 34

Non-U

FIG. 35

FIG. 35

FIG. 36

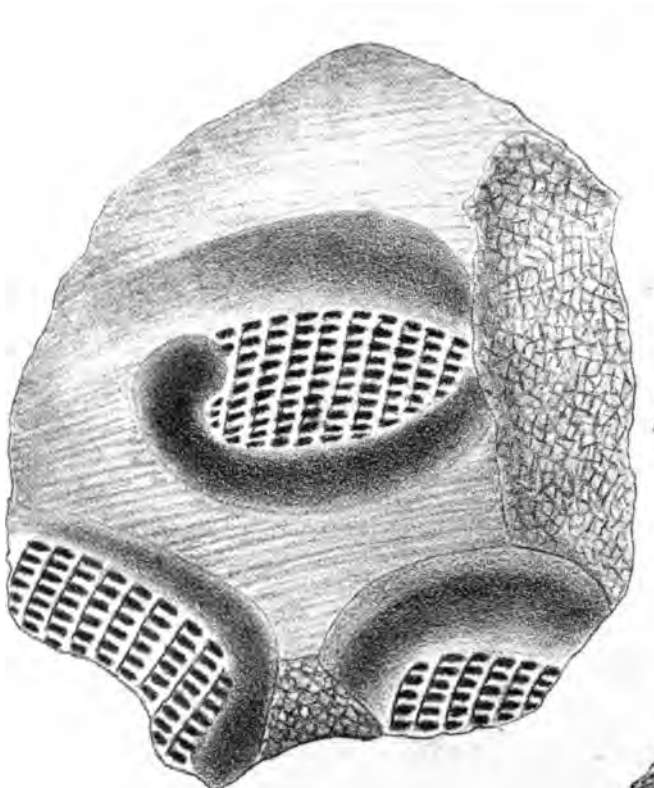


FIG. 37

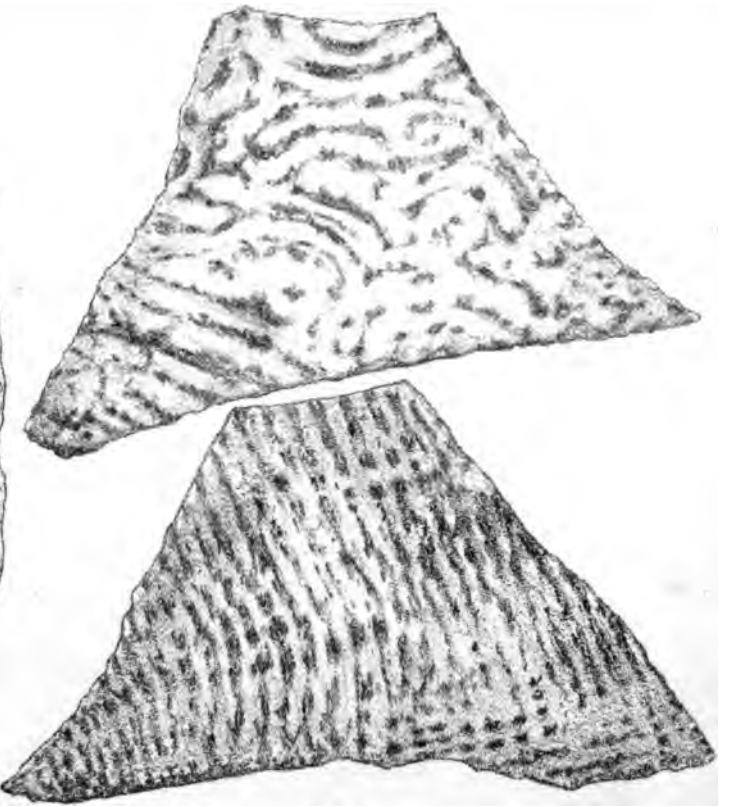


FIG. 38

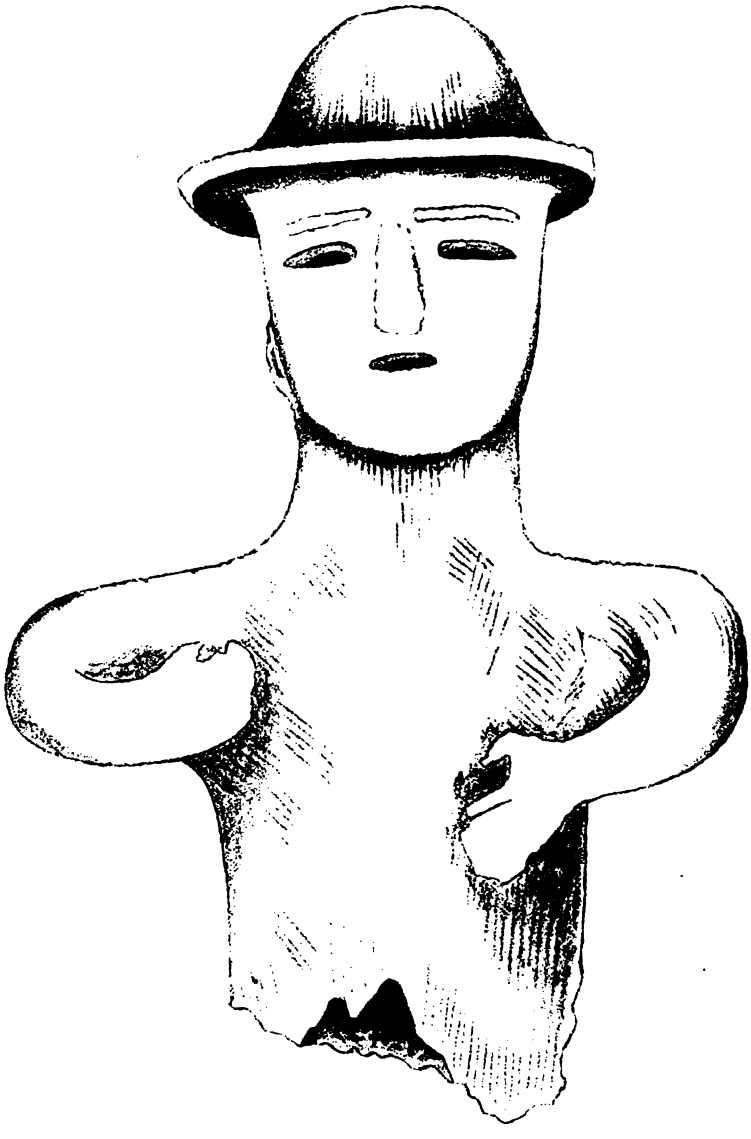


FIG. 39

set up by the road-side for the entertainment of pilgrims to the temple, until it suffered so much from the tricks of mischievous village children, who amused themselves with throwing stones on to it, that the grandfather of the present owner rescued it from their hands, and placed it in safety. When first discovered it was a sitting figure complete as far as the knees, on which rested the hands. The arms are said to have been clothed in long narrow sleeves, but nothing more seems to be definitely known about the costume than can be seen from the accompanying fig. 35. The height of the fragment is nearly 14 inches. Its material is a very hard black clay, and the only traces of moulding are the marks of some textile fabric on the brim of the hat, by means of which the required shape was given and maintained while the figure was drying. I shall not venture to make any comments upon the strange physiognomy of this bust; it seems to speak sufficiently for itself. Fig. 36. presents a view of it from the side.

A very curious fragment of pottery is shown in fig. 37, of dirty black clay, with the ornament already described as being produced by means of the knife and blunt points, applied in patches on the surface of the piece, round which are regularly formed curved depressions, made after the other pattern had been completed. It is reproduced in the figure undiminished in size, but is not large enough to afford any clue to the general shape of the vessel of which it must have formed a part. It is said to have been dug up in a field, the precise locality of which was unknown.

Of so-called *maga-tama* none were found in either of the three tumuli opened in 1878, but Kohito possesses one of a whitish cornelian, with an unpolished surface, which he states was found in the tumulus from which the pottery was derived.

Sepulchral mounds exist also at Kami Dakushi,[6] a village between Isezaki and Sakahi machi on the Mahebashi road, and some highly interesting pieces of ancient pottery obtained from them about sixty or seventy years ago are now in the possession of a doctor named Suzuki Kiyou-tai, who lives at Hodzumi, close by Kami Dakushi. These consist, 1st of a human figure in terra cotta (fig. 39), 18 inches high, with arms and hands complete, and wearing a round-crowned narrow-

[6] 上武士

brimmed hat. The nose has been knocked off, which deprives the face of its proper expression. The ware is exactly like that of the terra cotta posts already described, and has the same longitudinal brush-marks. Secondly, the head of a horse (fig. 40), also in terra cotta, with the longitudinal brush-marks, and a head-stall moulded on to it, ornamented with bosses and knobs. These knobs represent small hollow bronze spheres, with a small loose sphere inside, forming a kind of bell. One eye has been knocked out, the mane and forelock broken off, and one ear lopped short. The front length of the face is about 17 inches. From the appearance of the back, it seems most likely that the complete figure included the neck. Besides these two figures, there is a tube-post of terra cotta with the brush-marks, the top of which is broken, height 19.16 inches, diameter 5.7 inches, the hole for the cross-bar being near the top (fig. 41). I was assured by the persons who exhibited these things to me that there are several tumuli at Kami Dakushi still untouched, but I had no time to visit the locality.

No inscription of any kind has been found at these mounds which would help in discovering the names of the persons buried in them, but local tradition appears to afford a clue to their identity. In the "Catalogue of Families,"[7] there is abundant evidence to show that at a very early period an offshoot of the imperial family had received the eastern part of Japan for its appanage, and this house seems to have afterwards divided into two branches called Princes *(kimi)* of Kaudzuke and Shimotsuke,[8] from which sprang many other families. The first ancestor of them all was Toyo-ki-iri hiko, elder brother of the Iku-me-iri hiko, who afterwards became Mikado, and is known in history as Suwi-niñ Teñ-wau. A legend narrated in the Ni-hoñ-gi tells how their father loved both in such equal measure that he could not decide which of them to make his heir, and he resolved therefore to let each tell him a dream, from which he would obtain auguries to guide his choice. The two princes, having received his

[7] (姓氏錄)

[8] Or Kami-tsu-ke-nu and Shimo-tsu-ke-nu, as they were called when that "Catalogue" was compiled.

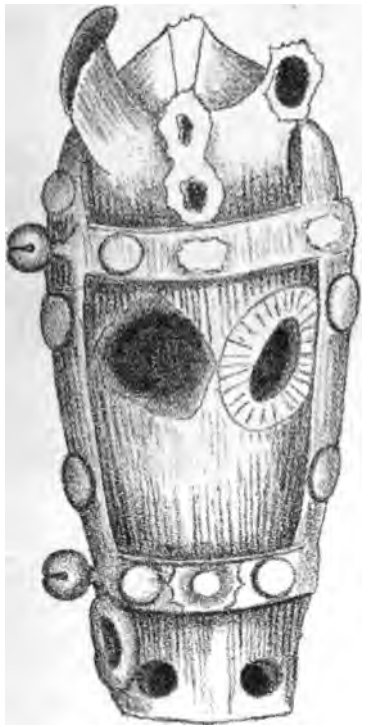
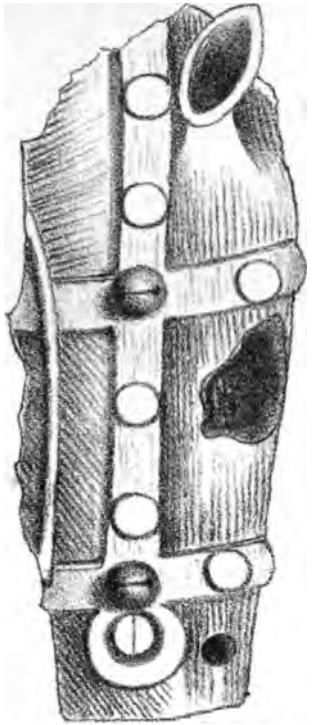


FIG. 40



SIDE VIEW

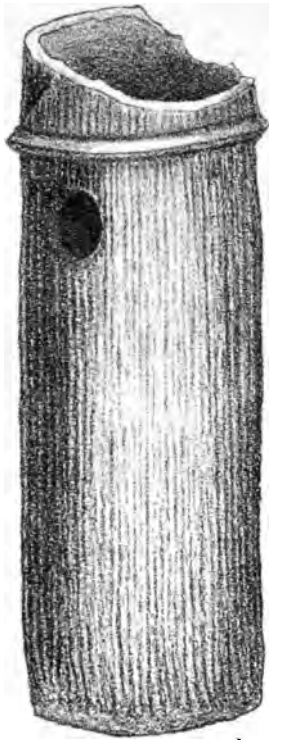


FIG. 41

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instructions, bathed themselves and said their prayers, and then going to sleep dreamed each a dream. At daybreak the elder reported to his father that in his dream he had ascended a certain hill, and turning to the east, eight times brandished his spear and eight times dealt a blow with his sword. The younger then told his dream in turn. He had ascended the same hill, and spreading a rope on all sides of him, had hunted the sparrows that devoured the corn. From these two dreams it was naturally inferred that the gods intended the elder to be governor of the Eastern Provinces and the younger to be monarch of the whole empire. The latter was therefore recognized as heir to the throne, and the former appointed ruler of the Eastern Provinces. These events took place in the 48th year of Su-zhiñ Teñ-wau, which, according to popular chronology, corresponds to the year 50 B.C., but this date cannot be accepted with any more confidence than, let us say, the year 1184 B.C. for the fall of Troy. The son of Toyo-ki-iri hiko was Ya-tsuna-da, who was in turn succeeded in the governorship of the east by his son Hiko-sa-shima no miko, but the latter died on the way, just after setting out from the capital to take possession of his office. The Easterners (some of whom may perhaps have come up to Yamato to meet him) secretly carried off his body and buried it in the province of Kaudzuke. The Ni-hoñ-gi (from which these notices are taken) goes on to say that Mi-moro-wake no miko, son of Hiko-sa-shima, was appointed in the following year to take his father's place. This event is ascribed to the 56th year of Kei-kau Teñ-wau or 126 A.D., according to the same fabulous chronology, and it adds that "the descendants of this prince, who was a wise and benevolent ruler, exist in the eastern provinces to this day" (i.e. some time in the 8th century).

If it be admitted that the local tradition which identifies the central tumulus with the burial-place of Mi-moro-wake no miko is authentic, then the conjecture of Japanese archæologists that the tumulus in which so much pottery was found is probably that of Toyo-ki-iri hiko, seems worthy of acceptance. On the west of Mahebashi, at the village of Uheno, there was formerly a sepulchral mound said to be that of Toyo-ki-iri hiko, and in Vol. I. of the Kuwañ-ko Dzu-setsu Mr. Ninagaha has figured a beautifully shaped vase found in it about the end of the 18th century. The ornamentation of this vase so closely resembles that of

the pottery dug up at Ohomuro, that it is impossible not to conclude that the two mounds were constructed about the same period by people of the same race. The burial place of Hiko-sa-shima, whose body was carried off by the inhabitants of this province, still remains to be discovered. The large number of sepulchral tumuli in this part of the province seems to indicate the site of a town of considerable size, and on the north of the village of Ohomuro in a commanding situation is a piece of ground, where it would not be unreasonable to suppose that the great man of the locality had a fortified residence. It is raised above the fields on the south, west and east sides, and surrounded entirely by what was once a moat. Even in those portions of the moat which have been converted into paddy-fields, the outer bank can still be traced with unbroken completeness. In adopting the view that these tumuli are really the burial places of the above-named heroes of antiquity, I do not at all mean to support the correctness of the Japanese dates, and the true age of the mounds must be determined by archæologists who can give a well-based opinion as to the probable date of the pottery which they have been found to contain.

Frequent mention has been made of the ancient Japanese custom of burying human beings and horses at the tombs of chieftains, for which clay figures, such as those already described, were afterwards substituted. The most important passage is in the Ni-hoñ-gi, Book VI, in the Annals of Suwi-niñ Teñ-wau, which I think is worth translating as closely as possible.

"On the *Ka no ye uma* day of the 10th moon, the rising of which was on the *Hi no ye tora* day,[9] the Mikado's uterine younger brother, Yamato-hiko no Mikoto, died. On the *hi no to tori* day of the 11th moon, the rising of which was on the *hi no ye saru* day,[10] they buried Yamato-hiko no Mikoto on Tsuki-zaka[11] at Musa. On this they assembled those who had been in his immediate service, and buried them all upright round his sepulchre alive. For many days they died not, but day and night wept and cried. At last they died and rotted. Dogs and crows assembled and ate them. The

[9] I.e. the 5th day of the month.

[10] I.e. the second day.

[11] 桃花鳥 read *tsuki*.

Mikado, hearing the sound of their weeping and crying, felt saddened and pained in his heart. He commanded all his high officers, saying: 'It is a very painful matter to force those whom one has loved during life to follow him in death, and though it is an ancient custom, why follow it, if it be bad? From now and henceforth, plan so as to stop causing [men] to follow the dead.'

* * * * * *

"In the autumn of the 32nd year, on the *tsuchi no to u* day[13] of the moon, which rose on the *ki no ye inu* day, the empress Hi-ba-su hime no Mikoto (in another source called Hi-ba-su ne no Mikoto) died, and they were several days going to bury her.[13] The Mikado commanded all his high officers, saying: 'We knew before that the practice of following the dead is not good. In the case of the present burying, what shall be done?' Thereupon Nomi[14] no Sukune advanced and said: 'It is not good to bury living men standing at the sepulchre of a prince, and this cannot be handed down to posterity. I pray leave now to propose a convenient plan, and to lay this before the sovereign.' And he sent messengers to summon up a hundred of the clay-workers' tribe of the country of Idzumo, and he himself directed the men of the clay-workers' tribe in taking clay and forming shapes of men, horses and various things, and presented them to the Mikado, saying: 'From now and henceforward let it be the law for posterity to exchange things of clay for living men, and set them up at sepulchres.' Thereupon the Mikado rejoiced, and commanded Nomi no Sukune, saying: 'Thy expedient plan has truly pleased Our heart;' and the things of clay were for the first time set up at the tomb of Hi-ba-su hime no Mikoto. Wherefore these things were called *haniwa* (a circle of clay).[15] Then he sent down an order, saying: 'From now and henceforward, be sure to set up these things of clay at sepulchres, and let not men be

[13] I.e. the 6th of the month.

[13] I.e. several days elapsed before the funeral.

[14] Some read this name Numi, but Nomi is usual.

[15] A gloss in the original runs: "Another name is *Tate-mono*," i.e. things set up. The Wa-miyau Seu (Bk. XIV, F. 210.) defines *Hani-wa* as "human figures made of clay, placed upright like a cart wheel round the edge of a sepulchral mound."

slain.' The Mikado bountifully praised Nomi no Sukune, bestowed on him a kneading-place, and appointed him to the charge of the clay-workers' tribe."

In the year 781 fifteen members of the tribe presented a memorial recalling the great services of their ancestor Nomi no Sukune, in which they say: "In the reign of Suwi-niñ Teñ-wau, ancient customs still prevailed and funeral ceremonies were ill-regulated. Whenever a death occurred, it was the general custom to bury other persons along with the deceased. When the empress died and the mortuary hut was still in the courtyard, the emperor took counsel with his high officers, and asked them how the empress should be buried. The high officers replied that the ancient precedent of Yamato-hiko no Mikoto should be rigidly followed, whereupon your servants' ancestor Nomi no Sukune spoke out and said that, as far as his foolish opinion went, the custom of burying others with the deceased was contrary to the principles of humane government, which aimed at profiting the state and promoting the advantage of the people. He consequently brought some 800 clay-workers, and he himself directed them in taking clay and forming images of various things, which he presented to the Mikado. The Mikado greatly rejoiced, and had them substituted for the men who followed the deceased. They were called *hani-wa*, and also *tate-mono* (things set up)."[16]

In the Ko-zhi-ki the notices of this custom are extremely brief, but they refer to the same two persons as those in the Ni-hoñ-gi. Of Yamato-hiko it is simply said: "At the [funeral] time of this prince a fence of men was for the first time set up at a sepulchre." Taking this, together with the expression "ancient precedent of Yamato-hiko," used in the memorial of the clay-workers' tribe, Motowori's conclusion that, although the custom of burying servants in company with their dead master was of ancient date, the funeral of this prince was the first occasion on which such a large number were sacrificed, seems reasonable enough.

The other reference in the Ko-zhi-ki tells us very little. It merely says: "Also at the [funeral] time of his chief consort, Hi-ba-su hime no Mikoto, they appointed the stone-coffin makers, and also appointed the clay-workers' tribe."

[16] Shiyoku Ni-hoñ-gi 續日本紀, bk. 39, f. 44v.

Hani-shi seems to have been the common word for potter in ancient times. In the Wa-miyau Seu (abt. 960) twelve villages in Kahachi, Idzumi, Kami-tsu-ke-nu, Shimo-tsu-ke-nu, Tañba, Inaba, Bi-zeñ, Aha (in Shi-koku), Chiku-zeñ and Chiku-go are mentioned which take their name Hani-shi, Heshi or Hashi from the potting industry.

It does not appear that the practice of killing servants and horses at the grave of a prince, or great man, was completely done away with by the invention of clay images as a substitute. As late as the year 646 (which is in the historical period) the reigning Mikado found it necessary to issue some sumptuary regulations with regard to funerals, and prohibit cruel and useless slaughter of this very kind. The passage is extremely interesting, because it gives the dimensions of the vaults and of the mounds that might be raised over them in the case of all degrees of persons from grandsons of the Mikado and his high officers down to the common people. For instance, a prince might be buried in a vault 9 feet long and 5 feet wide within, covered by a mound 72 feet feet square and 40 feet high. A thousand labourers might be employed in the construction, and the work was to be completed in 7 days. The vault for a functionary of the highest rank was to be of the same dimensions, but the mound was to be only 56 feet square and 24 feet high, while only half the number of labourers was allowed. A prince was to be borne to the grave in a car; a high functionary on the shoulders of bearers. The common people had to be buried in the ground on the day of their death, and no mound could be raised over the grave. Up to that time the dead had been buried just where the family found it most convenient, but it was now ordered that special cemeteries should be set apart for their reception. The decree proceeds to say: "Let there be complete cessation of all such ancient practices as strangling one's self to follow the dead, or strangling others to make them follow the dead, or of killing the dead man's horse, or burying treasures in the tomb for the dead man's sake, or cutting the hair, or stabbing the thigh, or wailing for the dead man's sake." And another copy of the edict contained the additional sentence: "Bury not gold, silver, brocade, diaper or any kind of variegated thing."[17] This passage may perhaps be of some use in determining a minimum age for the burial mounds of

[17] Ni-hoñ-gi, bk. xxv.

Further, the costume of any country or any period of fashion has a more intimate connection with other points of interest, such as habit, climate, and even physique, than would at first sight appear to be the case. And an understanding of such necessary subordination is sufficient to account for the absurdities noticeable in a country changing its long established costume, or among foreigners resident in such a country when assuming a dress which they are unable to wear in other but a ludicrous manner. A great French archæologist and artist has expressed himself on the subject in the following terms:[1] "With each important modification in dress the deportment of the wearers and the manner of holding the arms change. It is evident, for example, that very ample robes and long sleeves oblige one to hold the elbows to the body and to walk in a certain manner, so as not to entangle the legs in the folds, whereas on the other hand close fitting garments compel one to hold the arms at some distance from the body and to walk with the legs close. The belt tightened to the waist occasions the bending of the loins and a prominence of the chest. It results from this, that, observed from the distance of several centuries, or even of several decades, the people of one epoch appear to have among themselves certain points of resemblance. Without going further back, for example, the women of the first Empire have an air of family likeness which one cannot fail to notice in studying the best portraits of the period. It is the same in all periods of fashion. A cavalier or a lady of the time of Louis XIII. was not of the same type as was a cavalier or a lady under Frances I. These physical differences grow out of the fashions, or, to speak more correctly, out of the physical types which best ally themselves with each fashion and which, to a certain extent, impose their adoption and mode upon all. If it be the fashion to have short waists, the people who have long waists do all that is possible to correct this relative defect: though not having that grace in their movements which one finds in those naturally formed for the reigning mode, still by the study and imitation of that which is considered good they attain to some extent the result sought for. One might call this the physiology of costume. With regard to the habit of wearing long or short clothes, this again has on the physique a distinct and marked influence. It seems hardly necessary

[1] Dictionnaire du Mobilier Français, Violet le Duc.

to insist upon the connection between raiment and physique, since we can any day see proofs of it. One can recognize the military man in civilian's dress by his gait and movements alone; in the same way we can distinguish an ecclesiastic, and it is but few barristers who wear their robes in other than a ridiculous fashion. Not living habitually in his gown, which he dons in the courts, his movements and gestures are in entire disaccord with the dress that he pleads in. He hauls and shifts about the folds of his robe in such a manner as to give one the impression that he is labouring to escape from under a black cloth. How many actors fail to train their physique in accord with the costumes imposed upon them by their role! It is certain that Agamemnon had neither the gait, gestures nor fashion of behaviour of Charles V."

A study of the costume of Japan, as it has existed with but slight changes through many centuries, will reveal a remarkable suitability to physical conditions as well as to climate and habits of life: it, however, naturally follows that changes in custom and habits should bring about changes in costume. To allude merely to one small point, the Japanese mode of sitting has in itself rendered comfortable and shewy certain styles of attire which would have been cumbersome, inconvenient and ugly, and therefore logically incorrect, if worn by people using chairs and couches. The reverse also holds good, and one can well understand how the modern *yakunin* is only too glad to doff his official clothes when lounging in the comfort of his own home. Perhaps there is no country in the world, unless it be China, in which such great importance has been attached to the minutiæ of dress as has been done in Japan. Not only the form and cut has been fixed according to station and rank, but rules of colour, pattern, fabric, and even such trivial matters as the plaits of a cord or the loops of a bow have been most strictly fixed. The inviolable restrictions of rank and of caste also, as in all countries during a state of feudal government, has rendered imperative distinctions in the clothing of the various classes of the people. It would have been impossible in Japan, as indeed it was in Europe during the middle ages, for servants to assume the left-off finery of their masters. Each class, as may even now be noticed in some parts of the Western continent, had its distinctive style of costume. The broad distinctions, however, of king, courtier, soldier, priest, merchant and peasant have

been in Japan so very comprehensive, including so many minor subdivisions of rank and so many individual rights, that such a classification is alone insufficient when applied to the subject of modes of attire. It is only natural to suppose that during the many centuries of Japanese civilization there should have been considerable changes in the customs of clothing among the people; and yet, on the contrary, from the time of the establishment of fixed ranks and rules of ceremonial founded upon those of China, very few important modifications seem to have taken place. If we refer for comparison to the development of the modes of costume in European countries from the time of Charlemagne to the period of the Renaissance, an epoch which for gorgeous ceremonial and feudal vassalage, as well as for the ostentatiousness of ceremonial dress, may be well chosen as a parallel, we find that each century exhibited a great change, sometimes quite revolutionary, in the forms of costume from the highest to the lowest classes. It is probable, moreover, that changes in minor points of shape and of toilet took place at the same time with almost the same rapidity as is to be observed at the present day in our ever-changing fashions. Japan seems to have remained far more conservative; and from the period to which reliable history takes us back, when a well established form of government and complicated ceremonial existed, up to the present day, there have been no revolutionary changes and very few minor modifications in the styles of dress. The minor changes referred to consist chiefly of rights conferred upon nobles and gentlemen to assume articles of dress or colours, materials or patterns in their clothing which had hitherto been confined in their use to their superiors; also in more recent times there appears to have grown up a kind of laxity in the observance of ceremonial minutiæ resulting in the use of forms of costume by those who originally had no right to assume them.

Such conferments of Imperial favour and irregularities in following ancient ritual appear to have been the only way in which changes were produced. Certain books upon antiquarian subjects give descriptions and drawings of various articles and forms of dress which in later times have become obsolete. Such a book is the *Kot-tō-shū*, and in this there are to be found explanations of several ancient forms in the popular clothing as well as such matters as hair-dressing and toilet, which later fashions seem

to have changed. Such modifications, however, appear to have been very slow and insignificant. The Imperial decrees fixing the costume of the nobles and office bearers according to rank, naturally imposed no restrictions preventing fluctuations modifying the character of the clothing of the middle and lower classes. There were, however, and still are, among these classes other influences rendering such modifications few and far between.

The seclusion of Japan had much to do with the conservatism of old established customs. The frequent changes in costume in other countries are mainly due to the intercourse with other nations and the tendency to imitate and adopt their example.

Among those nations of the European continent which took the lead and set the fashion to the others, the adoption of new modes was in the main arbitrary or fanciful, but may in many cases be accounted for by the influence that literary revivals and studies from the ancients and from modern and foreign peoples had upon the public taste. Japan has, on the other hand, until recent years, held little intercourse with any country except China, a country perhaps more conservative and unchangeable in its tastes than Japan itself. It is not to be wondered at, then, that having fixed upon a costume fitted to its ceremonial and the demands of its climate and customs, the forms instituted should remain for many centuries uninfluenced by the fluctuation of changing fashions. The general shapes of the popular dress being established, there still remained plenty of room for variety and individuality in the variation of colours, patterns, and modes of arrangement, such as the bow of the *obi*, the length of sleeves, and manner of hair-dressing. Within certain limits, however, such variations have been governed by social conventions seldom if ever violated. Each age in manhood and womanhood has its special distinction in colour and arrangement, which habit and the fear of public ridicule prevents the most ambitious dandy or coquette from transgressing. As an instance of this it may be noted that every lady in Japan shews within a few years the period of her life in the respective arrangements and forms of her attire and her toilet.

The subject of this paper necessarily divides itself into several parts. The civil, ecclesiastic, and military dress are each of them

distinct and require to be considered separately. The *Shi-zoku* or *Samurai* having been virtually always armed, their civil and military dress merge, and it will be sufficient to classify under the division of military costume, armour and such arms as were not carried in private life and used only in time of war. From the civilian's dress, whether it be that of the noble or the *samurai* in his official or private life, the sword is inseparable. Again, it is necessary to describe respectively the dresses of the two sexes in each class, as well as distinctions made in the attire of children. In considering the subject of the civilian costume of the Japanese, that of the nobles takes the first place, and under this head we shall treat of not only the *ku-ge* or nobles of Imperial blood, but also the Shō-guns, and Dai-miyōs, who as far as certain ceremonial rights and styles of attire were concerned, were equal with the highest prince of the land. The term *Kuwa-zoku* might be used as including these different dignities under one nomenclature, but the term is a modern one and may be objected to by some scholars as being ill defined.

NOBLES.—MALE ATTIRE.

The distinctive differences in attire among the nobles were fixed according to the rank. The different ranks were formally established in the reign of Kō-toku Ten-nō, about the year 650 A.D., in correspondence with those of the Chinese Empire.

They constitute in all nine ranks, some divided into two and others into four grades, making in all thirty different grades of rank. The first, *Shō-ichi-i*, was rarely bestowed upon nobles during life-time, but was often given as a posthumous rank to the deceased. Those not yet possessing rank were called *Mu-i*. There were other ranks of a higher class bestowed upon the Emperor's nearest relatives, including the heir to the throne, who were called *Shin-nō*. These ranks were denoted by the terms *Ip-pon Shin-nō*, *Ni hon Shin-nō*, *Sam bon Shin-nō*, *Shi hon Shin-nō*. Those among these royal princes upon whom rank was not yet bestowed were called *Mu-hon*.

This title of Shin-nō was on some rare occasions bestowed upon the Shō-guns, who had no claim to royal blood, as a very special favour from the Emperor; in many cases the Shō-gun received the highest rank of a noble that was possible during life, namely *Jū-ichi-i*.

Japanese histories contain frequent references to the official titles of the dignitaries of the government and the offices or departments to which they belong. The ranks corresponding to these official titles varied at various periods and with the merits of the holder, but for the most part they may be taken as correctly represented in the Supplement to Klaproth's "Annales des Dairis."

Again, in addition to the distinction of forms, colours, and patterns of clothing according to rank and to office, there were other regulations fixing the style of dress for particular occasions of ceremony. The chief of these ceremonial occasions were as follows:—

Jō-i: Appointment of an heir to the throne.

Go soku-i: Ceremony of accession.

Dai-jō-ye: Large public ceremony of accession.

Gem-buku: Arrival at manhood of Emperor or heir.

Shi-hō-hai: Religious ceremony on the first day of the new year, on which occasion the Emperor visits the temple shrines within the palace.

On-ha-gatame: Congratulatory offering of rice cake to the Emperor.

Sho-chō-hai: Ceremony at twilight on the first day of the new year, on which occasion the Dai-jin meet and feast with the Emperor.

Chō-gu: Religious ceremony on the morning of the first day of the new year, on which occasion the Emperor, Dai-jin and Ku-ge meet the Emperor at the Dai-goku den.

Sechi-ye: Visit to the Shi-shin-den and meeting and feasting with the court on the first day of the new year after the Sho-chō-hai, in the evening.

On Chō no Hajime: Ceremony on the fourth day of the new year in honour of the Imperial buildings. The court meets at the Nai-shi dokoro, wearing Kariginu, and two carpenters wearing *suwo* go through the ceremony of plaining wood.

Sen-shu Ban-zai: Visit on the fifth day of the first month to the Sei-riō-den, where the *Man-zai* dance is performed before the Emperor.

Nanakusa no ma: Ceremony on the 7th day of the 1st month, consisting in the offering to the Emperor of seven different pickled herbs significant of good health throughout the year.

Haku-ba no Sechi-ye: Ceremony on the 7th day of the 1st month, on which occasion a white horse is conducted through the grounds in sight of the Emperor.

Miyuki no Hajime: The first visit of the Emperor of the year outside the palace in which visits are paid to the palaces of the Imperial Princes.

San-gi chō: Ceremony on the fifteenth day of the 1st month, being the occasion of the burning of the first manuscript of the year written by the Emperor. The idea of this ceremony seems to be that the ashes of the burnt paper, ascending to heaven, may bring a blessing of skill upon the hand of the writer.

Tōka no Sechi-ye: Ceremony on the sixteenth day of the 1st month, with songs and feasting, this being the first day after the close of the New Year ceremonies.

Dai-jin Tai-kiyo: Ceremony on the 11th day of the 1st month, on which day the Dai-jin are received and feasted by the Emperor at the Tsune go-ten.

Nai-yen: Ceremony on the 21st and 22nd day of the first month, on which occasion the Imperial relatives are received by the Emperor at the palace and feasted.

Rek-ken: Ceremony on the 7th day of the second month, on which occasion the Emperor, visiting the Dai-jo-kuwan, an examination and rewarding of those holding ranks below *roku-i* takes place.

Kasuga Matsuri: Religious festival in honour of the gods of the temple of Kasuga, commencing on the first *saru no hi* of the 2nd month and lasting three days.

Seki-ten: Ceremony in honour of the Confucian Sages, when their portrait pictures are exhibited, taking place on the first *hinoto no hi* of the 2nd month.

Kō-i: Ceremony of robing in summer clothes on the 1st day of the 4th month.

Kamo aoi Matsuri: Festival to the gods of Kamo, when sacred grass is worn in the hat, taking place on the second *tori no hi* of the fourth month.

Hachi-man hō-jō-ye: Religious festival to the gods of Hachi-man from the 13th to the 16th day of the 8th month.

Wa-ka no On kuwai: Ceremony and feast to the Emperor offered by the princes and nobles on the 9th day of the 9th month.

Shin-jō-ye: Harvest festival on the second *U no hi* of the 11th month.

Toyo no akari no Sechi-ye: Ceremony on the day following the Shin-jō-ye, the eating of the first fruits by the Emperor.

Go-setsu no Mai: Festival on the first *ushi no hi* of the 11th month, with dancing and feasting.

HŌ.

The garment called *Hō* is the principal robe or upper tunic which was worn as the ceremonial dress of the Emperor and nobles. It is of very ancient origin, having been made in the first instance of silk specially imported from China (about 800 A.D.) by female Chinese seamstresses who were hired and brought to Japan for the purpose. There are many different names given to this robe according to its colour, the pattern of the silk or differences in cut. The general name given to the principal shape used among the highest ranks is *Hō-yeki Hō*. It consists of a loose oblong body reaching some little way below the knees and having a border at the bottom about 8 inches deep, which widens at the two sides in such a way as to form two large flaps called "ran." It has deep loose sleeves about 2 feet long. The whole length, as would be supposed, varied with the wearer, but figured drawings give a length of 4 feet 8 inches as the most ordinary size. In the front the *Hō* was closed by folding over from left to right and was secured by a tight collar fastened by a silk cord. Behind, at the level of the waist, was formed a loose square flap or pocket to allow of a belt being tied up

under it; this was called the *kaka-bukuro*. The wearing of this robe, though originally granted as a special favour from the Emperor to a few, became eventually common to all classes of nobles, the different ranks being distinguished by the special colours, the quality of material, and the pattern of the ornament. Each rank, moreover, had the privilege of using one of two or three colours, according to the occasion. The Emperor's ceremonial *Hō* is said to have been of a yellowish brown-coloured damask, with embroidery representing the *kiri* tree (Pawlonia imperialis), bamboo and *kirin* (a fictitious animal resembling the unicorn), the pattern being repeated twenty-four times. It was made very thin in the summer, but in the winter was rendered thick by lining. The colour for a Prince of the Blood (Shinnō) was yellow, or in some cases pale greenish blue *(asagi)*. The colour for the highest class of Ku-ge, including also an Emperor dowager, was deep purple; the retired Emperor, however, sometimes wore a red *Hō*. The second and third classes wore light purple. The fourth class wore deep red. The fifth class wore light red. For the sixth class a dark green colour was appointed and an inferior material called "kinu" or common silk. The seventh class wore a *Hō* of the same material but of a light green colour, and the 8th class a deep blue colour *(hana-iro)*. The ninth or lowest class wore a *Hō* of silk or fine hemp cloth dyed of a light blue colour. All nobles above and inclusive of the fourth rank were permitted to wear a black damask *Hō* instead of their coloured one. For ordinary occasions not ceremonial other colours were fixed according to the rank: the first to the fifth class wearing red, the sixth class brighter red, the seventh class light purple grey *(midori)*, the eighth class wore a bright blue and the 9th or lowest class a light blue *Hō*.

KETTEKI HŌ.

Another kind of *Hō* called the *Ketteki Hō* was often used. It differed from the *Hō-yeki Hō* in being slit on both sides from the sleeves downwards, having no bottom flaps. This robe somewhat resembled a garment called the *karigínu*, to be afterwards described. It was worn by the son of an Emperor and certain of the nobles; and more seldom by the Emperor himself. The front half of the skirt of this robe was

worn drawn up so as to fold over the belt at the middle, forming a flap loop at the waist and causing the front half of the skirt to appear shorter than the back. The *Ketteki Hō* was worn by the Emperor's military guards, called *Dzui-jin.*

KASANE OR SHITA-GASANE.

The *Kasane* or *Shita-gasane* was a loose tunic short in the front, slit up at the sides, having the hinder portion prolonged into a long train which trailed upon the ground. This robe was folded over in the front, leaving the throat open in the manner of an ordinary Japanese gown. The length of the train varied with the rank of the wearer, and was either allowed to trail behind when walking or was gathered up and held in one hand. The front of the *Kasane*, which hung down in two flaps, was turned up under a belt, or sometimes was made quite short. The train was eventually separated from the tunic to save trouble, being in one single piece, which could be tied on under the tunic or *Kasane.* It, however, always corresponded with the *Kasane* in material and colour. The skirt or train, when separate, was called the *Kiyō* or the *Shita-gasane no Shita*, and its length was according to rank. The *Dai-jō Dai-jin* wore a train 14 or 15 feet long, the Dai-na-gon's train was 12 or 18 feet long, that of the Chiū-na-gon was 12 feet, that of the San-gi was 8 feet, and for the 4th rank the *Kiyō* was 7 feet. In old age it was made short, regardless of rank, being only about 4 feet long. The body of this garment, when separated from the skirt, was made quite short, only reaching to the waist, and the deep sleeves were partly slit up from below to give more freedom in the use of the arms. This shortened portion became known sometimes by the name of *Hitoye.*

The material used for the *Shita-gasane* was silk damask, and the ordinary colour was white, with a woven pattern, and it was lined with the same material of a black or red colour. Green and light purple were less frequent colours, and were mostly used by youths. This garment was worn under the *Hō* or upper robe, by which it was mostly hidden, the *Kiyō* or train appearing below it behind, and the edge of the wide sleeves shewing below the sleeves of the upper robe.

AKOME.

The *Akome* was a short garment worn generally immediately below the *Hitoye* or *Shita-gasane*. It was sometimes worn instead of the *Hitoye*, immediately under the *Hō* or *Hitatare*, which will be afterwards described. The usual colour was white, but sometimes it was red. Youths generally wore an *Akome* of a light yellow colour. This garment seems to have been mostly worn in the winter and spring time, and was dispensed with in the hot weather, except during certain ceremonies, when its employment was imperative.

HAPPI.

Immediately under the *Hō* was often worn a short sleeveless garment called *Happi*, which was entirely hidden, but was stiffly starched so as to cause the upper robe to bulge out and look very full. The use of this dress was confined to ranks above and inclusive of the fifth class. Young men often wore a red *Happi* with large sleeves.

Ō KATABIRA.

Below the above mentioned garments was worn a tunic or shirt called the *Ō Katabira*, often going by the name of *Ase tori* (lit. sweat-absorber) when worn in the summer time. It was generally of a thin white material, having an edging of red silk at the sleeves and three distinct edgings of different colours at the collar to give the idea of three separate garments. The splendour of ceremonial clothing greatly consisted in the number and fullness of the robes, and trifling deceptions of this kind are often practiced to give to a single under-robe the appearance of several, by doubling it at the sleeves or collar, where it is alone visible. The triple-edged collar was white on the outside, black in the middle and red on the inside. In the summer for the sake of coolness the *Ō Katabira* was worn without the *Hitoye*, and being more exposed was red in colour and worn with *Hakama*, a kind of loose trowsers,—the two being of the same material.

HAKAMA.

The upper tunic or *Hō*, as before observed, reached only a short distance below the knees, and the other garments were shorter still, excepting of course the tail or train of the *Shita-gasane*. Below these, to form an efficient covering for the legs, were worn a kind of loose trowsers or skirt called *Hakama*, and of this garment there were several kinds.

UYE NO BAKAMA.

The ceremonial *Hakama* employed by the highest ranks on important occasions went by the name of *Uye no Bakama* or upper *Hakama*. The *Uye no Bakama* were a kind of straight wide trowsers, reaching to the ankles, being very full and gathered into plaits at the loins, where they were secured by wide bands of silk attached to the top. They were generally of white silk damask, figured with some pattern and lined with red silk, and were worn with the shirt or *Ō Katabira*.

RED SILK HAKAMA.

Under this garment was invariably worn a pair of plain red silk *Hakama* of the same shape, but a little longer, so as to show edgings of red silk just below the legs of the *Uye no Bakama*. These *Hakama* were always worn by the Emperor, princes and nobles at the most important ceremonies, and were often replaced on less important occasions by *Hakama* of a different kind called *Nu-bakama*.

NU-BAKAMA OR SASHI-NUKI.

The *Nu-bakama* differed from the *Uye no Bakama* in being longer and fuller in the legs and threaded through at the bottom with silk tape, by means of which the bottoms could be drawn in tight over the ankles, causing them to hang in a loose baggy manner over the boots. The *Nu-bakama*, or *Sashi-nuki*, as they were sometimes called, were worn in times of hunting and amusement, being found more convenient. The

colour, material and pattern varied with the rank and the age of the wearer, sometimes damask, sometimes common silk, and often commoner material still was used. The colour was commonly purple, a lighter-toned purple being used by the younger wearers.

SHITA-BAKAMA.

Below the *Nu-bakama* were worn the *Shita-bakama* or under trowsers, which were of the same shape and size as the former, with the difference of having no gathering cord at the bottom. When the *Nu-bakama* were worn the *Shita-bakama* was folded in by hand, whilst the cord of the *Nu-bakama* was fastened below it and it was thus perfectly hidden. In private life in-doors the *Shita-bakama* were sometimes worn alone without the *Nu-bakama*, and in this case they covered the feet and dragged behind, presenting a very awkward appearance and considerable difficulty in walking, but a form quite common among the Japanese and to be seen in the *Naga-bakama* or long trowsers of the samurai. In this case no socks or boots were worn. A drawing given represents the Emperor in his summer private dress, with red *Shita-bakama*. [See Fig. II.] The colour of this garment was invariably red.

KAMMURI.

With the before-mentioned garments was always worn some kind of ceremonial head-covering. The use of the *Kammuri*, as this head covering was called, is said to have been fixed in the year 594, and was at this time bestowed upon certain nobles of the Emperor's court. At this time it was divided into twelve different class distinctions, and these varieties peculiar to particular ranks increased up to the number of forty-eight, until after the era of the Emperor Tem-mu (686 A.D.), when the old style and classification ceased. Again an imitation of the old style of hat with fewer distinctions was revived in the year 690, under the Empress Ji-tō, when the ceremonial head-covering of the nobles became broadly divided into two kinds, according to the nature of material of which it was made, the distinguishing names being *Atsu-bitai* or thick crown and *Usu-bitai* or thin crown. These caps consisted

of a small round crown or scull cap, very shallow, with a raised hollow horn towards the back, somewhat like a beaver's tail in shape, into which passed the cue of the hair. In order to understand the logic of the Japanese *Kammuri*, it is necessary to know the mode of doing the hair, which consisted in shaving the front of the skull and drawing the rest of the hair back into a top-knot behind. This top-knot became a stiff hard cue, being rendered compact by oil, and was bound and bent back so as to stand vertically on the back of the head. The *Kammuri* shows distinctly its origin from a loose cloth drawn over the crown and folded round the cue, to which it was secured by a large ornamental pin *(kanzashi)*, leaving two ends hanging down behind. This early form may be seen in old drawings.

Within historic times, however, this covering became a stiff hat, formed of some starched or varnished material, still preserving as a part of its ornament two projections, one on each side of the cue holder, representing the hairpin, and used for the purpose of tying the hat to the head by means of a silk cord wound round them. The *Usu-bitai* or thin-crowned cap was of thin silk crape, having a crescent-shaped hole in the crown, lined with thinner white silk crape, probably for ventilation. The *Atsu-bitai* was made of a thicker starched or varnished material.

YEI.

To the back of the raised hollow horn of the *Kammuri* was fixed a double pennant called the *Yei*, of thin material. Originally this pennant was of paper, but latterly a kind of silk crape or gauze was employed. It was about a foot and a half long and two inches wide, and the method of wearing it differed. Only the Emperor could wear it standing straight up over the head, and even he wore it thus only on state occasions. The mode of wearing adopted by high rank *Ku-ge*, and the Emperor himself on semi-official occasions, was one in which the ribbon rose up a few inches vertically and then curved over behind, where it hung limp. Another method was to let it fall over as before and then curl it round at the back of the hat, threading it under the cord by means of which the hat was tied on to the head, and securing it further by a wooden peg.

There were many different modes of curling the *Yei*, the distinctions being peculiar to different noble families and called after these families. Such forms were the *Nakayama ke no Makiyei*, *Kuwajuji ke no Makiyei*, *Niwata ke no Makiyei*, *Yabu ke no Makiyei*, *Konoye ke no Makiyei*, and *Yamashina ke no Makiyei*. In some cases the *Yei* was curled over in front of the horn of the *Kammuri*, and held in position by a cloth tied round the whole and falling loosely behind over the neck; or else by a stiff piece of paper slit in the middle and passed over it. The first of these methods was called the *Gosaku kammuri* and the latter the *Kinshishigami kammuri*.

There is another method used by some of the higher ranks called *Koshika-basami*. Such head-covering as that just mentioned, as well as the *Yeboshi*, which will be afterwards described, hardly held the place in Japan that hats do in Europe—as a shelter from the weather—for which purpose, indeed, they were insufficient on account of their small size and their material.

They were worn as a part of the ceremonial dress both indoors and out of doors, and were not even removed in the royal presence. They are entirely distinct from the military hat or helmet, and from the *kasa* or rain and sun-shade, which was a very wide hat worn by farmers, coolies, or the poorer classes more exposed to the weather. The Emperor and nobles carried a fan for protection from the heat of the sun.

YEBOSHI.

Another kind of cap worn by the nobles on ordinary occasions not ceremonial was the *Yeboshi*. There were many kinds of *Yeboshi*, arranged according to the rank of the wearer and the importance of the occasions. This hat consists of a conical-shaped bag, somewhat like a brewer's cap, which was put on the head so as to cover the crown and contain also the raised cue of hair. Originally it was of limp material, and the top would then fall over on either side. This cap, made of oiled paper or stiff cloth, continued to be used by military men under the helmet, the edge being bound to the head by a cloth tightly tied round the forehead at the bottom. When used, however, with civilian dress it became a stiff Phrygian-shaped cap, blackened with varnish, having different

varieties in shape denoting special ranks or imperial favours. It was often worn set right back, so as to leave the front of the crown of the head exposed; and hung over behind in a curious and rather unsightly manner, being pinned to the hair cue and kept on the head by a purple silk cord wound over it and tied under the chin. The rounded top of the *Yeboshi* was bent a little forward and also turned down a little to the right or the left. The respective rights of the left bend and the right bend were confined to the two large rival families of nobles, the Gen-ji and the Hei-ke. The *Migi-maye yeboshi*, or the *yeboshi* bent to the right, was worn by nobles of the Hei-ke family; and the *Hidari-maye*, or left-bent *yeboshi*, by the Gen-ji family.

HIRA-O.

To complete the full ceremonial dress of the Emperor and nobles a long handsome girdle was worn round the waist and hanging down at the front, called the *Hira-o*. This girdle consisted of a separate broad portion some five inches wide, with a deep handsome fringe. This part, hanging down like an apron in the front, was suspended from the girdle proper, which was threaded through it and was bound round the waist, being also narrower than the front portion. To this belt the sword was attached. The *Hira-o* was of handsome embroidered silk, rendered thick and stiff. The ground-work was of purple, green, or dark blue, and the embroidery in bright colours represented birds, flowers, or some ornamental device suggestive of longevity or having some other congratulatory meaning. Among such congratulatory devices may be mentioned the bamboo, the pine and the crane. The hanging portion of the *Hira-o* sometimes consisted of two portions, one hanging down on the front and one on the left side, this difference being made according to rank. The *Hira-o* was only worn by those above and inclusive of the fifth rank.

ISHI NO OBI.

In certain ceremonies, such as the *Sechi-ye* and the *Mi-yuki*, the princes and nobles wore over the *Hō* a belt called the *Ishi no obi*. This

was a stiff belt of black leather, consisting of two halves connected by cords, the half which was towards the back being ornamented by a row of flat stones, about nine in number, tied on to the surface. The stones for the highest ranks were of green jade, and for the lower ranks they were simply some kind of soap-stone or marble. These ornamental stones were of a flat, square shape, some two inches in width, sometimes carved upon the outer surface, and tied to the belt by silk cords. The ends of the *Ishi no obi* were ornamented with metal clasps. There are many names given to this belt, according to the style of ornament or kind of stone used. When worn it was invisible towards the front, where it was covered by the waist of the *Hō*, but it was seen at the back, where the stones shewed.

GIYO-TAI.

On similar ceremonial occasions was worn a peculiar hanging ornament called the *Giyo-tai*, resembling in form an oblong box which hung by a leather cord from the first or second stone on the right of the *Ishi no obi*. The word *Giyo-tai* is said to signify "fish bag," its original use being that of a bag or pouch, and the outer surface being invariably ornamented with representations of fish. The *Giyo-tai* was covered generally with shark skin, and the princes and nobles above the third rank wore one of a red colour with the fish of gold plates let in. Those of the ranks of *Shi-i* and *Go-i* wore one having the metal fish of silver in place of gold. The cord by which it was hung was generally of leather, stained of a blue colour.

SHITA-GUTSU OR BETSU.

As a covering to the feet was worn a kind of sock called *Shita-gutsu* or *Betsu*, and over this shoes or boots. The *Betsu* were usually made of white silk, rendered stiff with lining, having soles of a thicker material. There was a kind, also sometimes used, which was made of rich-coloured and embroidered silk and worn on more important occasions. These *Shita-gutsu* reached a little above the ankle, and were split up in the front for the insertion of the foot and secured by a silk tape or cord

fastened to the top. Within doors these were worn alone without further covering, but in the gardens and generally for out-door use over these was worn a kind of shoe called the *Asa-gutsu*, meaning simply shallow boot. The *Asa-gutsu* resembled in shape the present Chinese shoe, being rounded and slightly turned up at the toe. They were of a kind of hard *papier maché*, covered with black varnish or lacquer on the outside, with leather soles. Instead of the *Asa-gutsu* the *Fuka-gutsu* or deep shoes were worn in rainy or snowy weather. These were in fact black leather or *papier maché* boots, very loose and large.

ŌTA

A kind of superior sandal made of rush-work, resembling the common house-sandal called *zōri*, was also occasionally worn in private life. This went by the name of *Ōta*.

SHAKU.

The above mentioned articles of attire completed the ordinary ceremonial dress of the Emperor and nobles, with the addition of the indispensable sword and sceptre or fan. The word "sceptre" is here applied to a short staff called the *Shaku*, which was generally held vertically in the right hand. The *Shaku* was made of wood or of ivory, the use of ivory being confined to the highest ranks and the most important ceremonial. No noble below the fifth rank could use an ivory *Shaku* on any occasion. The wood used was from the yew tree, called *ichi-i* or *kiyaraboku*, being of a very white colour.

ŌGI.

The closing fan or *Ōgi* was often carried instead of the *Shaku*. The kind most used was constructed of thin flat wooden ribs, twenty-five in number, fastened with a metal rivet and threaded through near the top with silk strings, which had very long ends, sometimes woven together and fixed upon the outer scale in the pattern of a wistaria flower or some other device. Sometimes the ends hung loose in a loop. Such a

fan was made of *Hi no ki* (Chamaecyparis obtusa), and was then called *Hi ōgi;* but before the age of fifteen a fan of a commoner wood called *sugi* (Cryptomeria japonica) was carried, and this was painted on the outside and ornamented with silk thread in five colours. The rivet head was often made ornamental, representing a butterfly or small bird in metal work. This fan was generally carried closed, and held like the *Shaku.*

In the summer time, in place of the wooden *Ōgi*, was used a fan of thin wooden ribs covered with paper, and painted with some device front and back. The portion of the wooden ribs not covered with paper was lacquered or painted in some bright colour, and the outer exposed rib was carved.

KEN OR TACHI.

The Emperor, Princes and Nobles carried as a part of their state dress a large handsome sword hanging vertically from above the left hip, being fastened by a strong silk cord to the girdle or *Hira-o*. This weapon was about three and a half feet long, slightly curved in shape, with a long handle and a small hilt guard. The handle, hilt end and sheath were ornamented with engraved and gilt metal ornaments, and there were two metal rings on the sheath to which the hanging cord was attached. The word *Ken* was originally used to distinguish a straight double-bladed sword from the curved single-bladed weapon called *Tachi*, which was shorter than the *Ken*. The words came, however, to be indiscriminately applied to the slightly curved single-bladed sword carried by the nobles. The ornamentation of the sheath and the hilt ornaments varied with the rank and the ceremonial. Almost every important ceremony had its peculiar weapon, distinguished by the kind of lacquer with which its sheath was covered or the material and inlaying of the handle. The handle was sometimes of white shark skin, inlaid with knobs of crystal, jade or soap-stone, with a gold top, from which hung cords of purple leather enriched with gold pendants or valuable stones. In some swords the handle was of engraved silver. The sheath was invariably lacquered, sometimes with gold lacquer, sometimes with

lacquer of a dull purple colour. The lower ranks carried a plainer weapon, with a sheath of plain black lacquer. Such a sword was also used by the higher classes in time of mourning.

SHIRIZAYU.

The sheath of the sword was encased often in an outer sheath or bag called the *Shirizayu*, made of the skin of the tiger or leopard, having the fur outwards. This was mostly carried only for out-door purposes, its chief use probably being to protect the handsomely ornamented sword-sheath from the rain.

EMPEROR'S CORONATION ROBES. (FIG. 1.)

Some form or other of the herebefore described articles of attire were worn by the Emperor, Princes, Ku-ge, and Dai-miyōs as full dress for most of the state occasions, distinctions of rank being denoted by differences in colour, pattern and minor details. For some very high festivals, such for example as the Accessional Ceremony of the Emperor, called *Dai-jō-ye*, the dress of the Mikado and the high rank princes differed in some important particulars. The robes worn by the Emperor on the occasion of his formal accession were as follows: The outer robe or tunic differed from the ordinary *Hō* in form, gradually widening out towards the skirts and folding over in front with a loose open collar and very full sleeves, not of the simple oblong shape, but curved at the bottom and very large. This robe, which was called the *Kon-riyo no i* or *Ō sode*, was of red damask, embroidered in gold and bright colours, with representations of the heavenly constellations, dragons, sacred birds, flame-shaped emblems and mountain peaks. The collar and sleeves were bordered with a wide band of dark blue. The body of the tunic was not shewn below the waist in front, being turned up under the girdle, from below which hung a kind of full apron piece or skirt called *Mo*. This *Mo* was also red, being gathered into large plaits, each plait having embroidered upon it four emblematic symbols consisting of two wreaths, an axe-head and a fret pattern. This was furnished with silk bands at the top for tying round the waist. With these garments were

worn the usual white silk *Uye-no-bakama*, *Shitagutsu* and *Asagutsu*, Underneath the *Kon-riyo no i* was worn a similar garment, somewhat smaller in size, made of wadded silk, probably to give the upper robe a fuller, richer appearance. This having smaller sleeves than the *Ō sode* went by the name of the *Ko-sode*. On such occasions, instead of the ordinary *Kammuri*, the Emperor wore a head-covering bearing some slight resemblance to a crown, inasmuch as it was mostly of metal, enriched with gold and precious stones. This was called the *Giyok-kuwan*. It consisted of a cylindrical-shaped crown of thin gilt copper, engraved and pierced, with a flat oversailing square top, formed of a metal border, with thin silk crape stretched across. From the edge of this broad tray-shaped top hung jewelled strings on all sides, forming a continuous fringe; and above it was a row of vertical metal wires topped with precious stones. In the centre of the front portion was a raised point carrying a metal disc with rays, representing the sun in glory. This curious crown, if it may be so called, merely rested on the top of the head, and was kept in position by silk cords tied under the chin. Inside was the ordinary bag-shaped cap or *kammuri* to hold the cue of the hair. This head-covering, which was worn at the ceremony of accession, formed merely part of the attire, and there was no coronation ceremony attached to the use of it. The two highest ranks of Imperial princes, called *Ip-pon Shin-nō* and *Ni-hon Shin-nō*, also wore coronets of a somewhat similar kind. An example of one of these may be seen in the Tōkiyō Haku-butsu-kuwan. Round the waist the Emperor wore a handsome girdle somewhat similar to the *Hira-o*, but differing in having the portion which hung down in front wider and of Chinese damask, with Chinese paintings upon it. This girdle was called the *Ju* (帯).

GIYOKU-HAI.

In addition to this hung from the belt on both sides long jewelled strings, with metal plates, reaching to the ankles. These pendants, which went by the name of *Giyoku hai*, consisted of five beaded strings of different coloured stones, united four times in their length by flat rounded copper gilt plates. The Emperor, who during the ceremony was

seated upon a kind of throne and wore no sword, carried the *Giyoku-hai* double, one hanging on each side. The princes, who stood, carried none on the sword side, with the wearing of which it would interfere. The ivory *Shaku* was held in the right hand.

DRESS OF IP-PON SHIN-NŌ WORN AT ACCESSIONAL CEREMONY OF THE EMPEROR.

A Prince of the Blood Royal of the first rank wore, on a like occasion, robes somewhat similar in character to those of the Emperor. The *Ō sode*, however, was not hidden below the waist, but hung down over the *Mo*, and thus resembled in appearance that of the *Hō*, with the exception that the sleeves were fuller, the collar was different, and the flaps (called "ran") at the bottom of the skirts did not exist. The colour of the *Ō sode* worn by *Ip-pon Shin-nō* was dark purple. The *Mo* was of blue, and only the bottom edge was seen hanging below the *Ō sode*. The *Giyoku-hai* and the *Hira-o* were also worn, and also a metal coronet or metal-cased cap, somewhat similar to the *Giyok-kuwan* of the Emperor. This was in fact the ordinary *Kammuri* of silk crape, having, however, a treble or quadruple bag for the hair instead of the single one, set inside a crown-shaped diadem of embossed and pierced metal, the back portion of which was further extended into a raised fan-shaped cusping of open metal wires, all gilt and inlaid in several places with jewels. An example of a diadem of this kind may be seen at the Tōkiyō Haku-butsu-kuwan. This ivory *Shaku* and ornamental sword called *kazari-dachi* was carried. The *Ni-hon Shin-nō* or Prince Royal of the 2nd rank was robed in a similar manner, the chief difference being in the colour of the *Ō sode*, which was green instead of purple.

SHIN-TŌ RELIGIOUS FESTIVALS.

Among the many Imperial festivals and ceremonies of the court, each demanding some distinctive difference in costume, were the Shin-tō festivals attended by the Emperor. In time of Shin-tō prayer or festival a dress called the *Omi* was worn over the *Hō*. The *Omi* was of several kinds, generally being of white cotton, with some pattern

embroidered in line upon it in blue or green colour. The *Omi* was sometimes long, ending in a skirt and flaps, and having a tight collar and bag behind like the *Hō;* it was then called *Hoyeki-omi*. Another kind was similar to the *Shita-gasane*, being split up at the sides, and longer behind than in front; this was called the *Shi-omi*. A third shape went by the name of *Shōshi-omi*, on account of it being worn by *Shōshi* or lower rank nobles. The *Shōshi-omi* had sleeves considerably shorter than those of the *Hō*, which shewed below them, and was short in the body, folded over in front and turned up under the belt, having a loose collar. Over the right shoulder of each kind of *Omi* were sewn two braided bands called *Aka-himo*. These were 2 or 3 feet long, hanging down loose behind, one being red and the other black.

KOKOROBA.

When this robe was worn the *Kammuri* was also ornamented in a manner peculiar to religious festivals. A metal prong, in imitation of a sprig of plum-blossom, and called the *Kokoroba*, was fixed in the crown of the hat; and from the sides hung down over the ears, as low as the breast, two looped and tasselled green cords called *Hikage no katsura*, from their resemblance to a moss of that name, from which the ornament was originally derived. The Ku-ge wore the *Kokoroba* and *Hikage no katsura* upon the ordinary *Kammuri;* the Emperor, however, wore a *Kammuri* of white silk on such occasions. The *Kammuri* was tied on to the head with white cord. The black *Hō* and white *Kiyō* and *Hakama* were worn with the *Omi*.

KARI-GINU.

The thick wide robes hitherto described, which were worn with certain variations of detail and ornament on ceremonial or semi-official occasions, were naturally very ponderous. On the occasion of sports or exercises, in which the princes and nobles sometimes engaged, certain modifications in costume were found advisable. The chief difference in dress was in the use of a robe called the *Kari-ginu* or Hunting-robe, to replace the *Hō*. This dress also went by the name of *Hoi*. The

material was thinner and the sleeves somewhat shorter than those of the *Hō*, the general shape resembling the *Ketteki Hō*. The *Hoi* was split up at the sides, and the sleeves were also slit at the shoulder so as to be almost detached from the body, except a small portion in front below the armpits. This greatly facilitated the use of the arms in shooting with the bow or other bodily exercises. The bottom edges of the sleeves were threaded through with silk cords, so that they could be drawn up tightly over the wrists and leave the hands free. The bottom of the body, also, had sometimes silk bands attached for tying to the waist. The usual mode of wearing the *Kari-ginu* was to draw it up under the waistband, leaving a short apron-shaped piece hanging down in front; behind, the skirt hung lower. The whole thus worn presented the appearance of a short *Shita-gasane*, with the peculiarity of two open spaces at the top and back of the sleeves, shewing distinctly a part of the dress worn below. With this robe the *Sashi-nuki* or *Nu-bakama* and *Yeboshi* were always worn. The colour varied with the rank. Old men wore a white silk *Hoi*, and the Imperial coolies, such as carried the Emperor's car and *impedimenta*, wore a white cotton *Hoi* with short *Nu-bakama*, leaving the legs bare below the knees. Even the Ku-ge in such a hunting dress wore no boots or socks, but simply sandals on the bare feet.

KINU.

Under the *Kari-ginu* was sometimes worn a short tunic called the *Kinu*, resembling in most respects the *Kari-ginu*.

THE DZUI-JIN.

Attached to the Imperial suite were a number of men, also of noble blood but inferior rank, who went by the name of *Dzui-jin*. These men were in fact the household troops or body-guard of the Emperor. Their duty was to guard the various gates of the palace, and to form an important factor in Imperial progresses, and they were supposed to act as warriors only in the case of the court being attacked. The dress of the Dzui-jin was different from that of the other nobles, being in fact a

combination of court costume with military clothing and equipment. They wore the *Ketteki Hō* and the *Nu-bakama*. Over this *Hō* was worn generally a kind of sleeveless shirt of mail or jazerine jacket, protecting the back and breast, passing under a belt at the waist and hanging some few inches short of the bottom of the *Hō*. This went by the name of the *Uchi-kake-yoroi*. These shirts of mail seem to have been of various kinds, some being merely handsomely emblazoned surcoats of thick woven fabric or leather, but usually made of small strips or scales of iron, gilt, and lined with stiff material. The edges were bound with handsome silk borders. Round the waist was worn the *Hira-o*, from which the sword was hung. The sword, the bow, and quiver full of arrows completed the weapons of equipment.

KURO-HAPPI

Under the *Ketteki Hō* was worn a sleeveless tunic called the *Kuro-happi*. This garment was only visible at the bottom sides, where the divided skirt of the *Hō* opened and revealed the peculiarly plaited edge of the *Happi* over the hips. The distinctive character of the *Kuro-happi* was that it had very short sleeves, and reached down to about the middle of the body. The sides from the shoulder downward were split up with the exception of a few inches at the bottom, where the front and back were united by a projecting triangular flap sewn in narrow plaits.

OI-KAKE.

The Dzui-jin wore the ordinary black *Kammuri* as a head-covering, with the addition of two fan-shaped cockades at the side just above the ears, projecting forward so as to form a kind of blinker. In fact the use of these *Oi-kake*, as they were called, seems to have been akin to the employment of blinkers to horses, namely, to render it impossible for the wearer to see on either side, and to add to the dignity of appearance by preserving a steady erectness of the head. The *Oi-kake* was made of thin horse-hair threads, arranged in a fan shape. The

pennant worn at the back of the hat was curled round and threaded under behind. The lower rank Dzui-jin wore, instead of the broad black crape ribbon, what was called the *Horo-yei*, being a thin ribbon or cord tied in a curled bundle behind.

KUWA.

The boots worn by the Dzui-jin were different from those of the other nobles. The military boot went by the name of *kuwa*. It consisted of a black leather bottom with pointed toes, having a top portion of red silk brocade covering the ankles. The uppers were slit in front and behind to allow the insertion of the foot, and were bound round with a leather cord and metal ring.

HIRA-YANAGUI.

Of the quiver which was worn at the back there were two kinds, called respectively *Hira-yanagui* and the *Tsubo-yanagui*. Of these the *Hira-yanagui* was that worn by the highest rank during the most important ceremonies, for being wide and shallow it allowed the arrows to be spread out in a fan-shape behind the back. The *Hira-yanagui* was merely a shallow tray or open box of lacquered wood, fitted at the mouth with stiff folds of ornamental silk in order to keep the arrows in place without preventing them being drawn on occasion. Attached behind was a sort of metal handle or wire, with silk cord attached, by means of which it was hung over the shoulder. The arrows displayed in this shallow quiver had feathers of various colours, presenting a very gay appearance, and were visible from the front in a rainbow form over the shoulders. The quiver held 12 arrows. The arrow ends were tippped with ivory.

TSUBO-YANAGUI.

The *Tsubo-yanagui* or vase-shaped quiver was, on the other hand, a narrow, deep receptacle of *papier maché* or leather, lacquered black, and pierced with a cusped opening, rendering it light and revealing the

sticks of the arrows. Only the feather-heads shewed above, and these were of eagles' feathers uncoloured. This quiver was worn on the back, sloping down from the right to the left s[illegible] in such a way that in front view the top of the quiver and the arrows were seen over the right shoulder.

SHIGEDŌ.

The bow was about five feet long when strung, being of a double ogee curve, and it was called the *Shigedō*. It was generally black lacquered, and bound every alternate three inches with white cord, presenting an appearance of alternating black and white.

Among the Dzui-jin there were also distinctive ranks, and also distinctions in the robes worn ordinarily, and on state occasions. The chief distinction was in the colour of the *Ketteki Hō*, which was generally either red or black, black denoting higher rank than red. Also the *Kammuri* or head-covering differed in its general form or in the shape of the ribbon or pennant called the *Yei*. The highest rank Dzui-jin wore on occasions of high ceremonial a very curious head-covering, consisting of a *Kammuri* with treble horn for the hair, surrounded by a sort of gilt metal crown with a square cage around it of thin black silk crape, having two long side pieces reaching nearly to the shoulders. This silk cage was rendered stiff by wire borders. At the top front corners were two large projecting eagle's feathers. [Fig. IV.]

As has been before observed, the dress of the young differs considerably from the style assumed on reaching manhood. On the occasion of the arrival at the age of fifteen the forelock was shaved, the mode of hair-dressing became changed, and the *Kammuri* was first worn by the princes and nobles. The young prince or noble, before attaining his fifteenth year, generally wore the hair drawn back from the forehead, and tied with flat silk cord in a double-looped ring at the back of the head. He wore a red satin or brocade dress, hidden below the waist by *Sashinuki* or *Nubakama*, of a purple colour, and tied round the top by a white silk band. The sleeves of the robe, or *Kosode* as it was called, were long and narrow, being split up at their junction with the body of the garment, and sewed up at the front in a bag-like form.

IMPERIAL BODY-GUARD (DZUI-JIN)—HIGHEST RANK.

Kutsu-shita and *Asagutsu* were worn similar to those of the more mature. The *Kammuri* or ceremonial head-covering was not worn until arriving at full age. A short ornamental sword was carried horizontally at the belt.

FEMALE COSTUME.

The female costume of the court differs considerably from that of the ladies among the gentry and middle classes. From an æsthetic point of view it cannot be said to rank higher, though in richness and display it far excels the dress familiar to most of us as the ordinary clothing of Japanese ladies. The dress of the court is fuller and wider, and not being confined at the waist but spreading out to a considerable breadth, renders still shorter in appearance the tiny stature of its wearers. The hair toilet too is entirely different from the ordinary. As with the male costume so with the female, the colours, devices and in some cases the shapes of the dresses vary according to the rank of the wearer. The following is a list in order of precedence of the titles or ranks given to the Imperial ladies and their court.

Tai-kō Tai-kō-gū	大皇太后宮	*Mikushi-den*	御匣殿
Kō-tai-gū	皇太宮	*Sen-shi*	宣旨
Kō-gō-gū	皇后宮	*Kurando*	藏人
Chiu-gū	中宮	*Miyō-bu*	命婦
Niyo-in	女院	*Niyo-kuwan*	女官
Koku-bo	國母	*Shu-ten*	主殿
Nai-shinnō	內親王	*Toku-sen*	得選
Niyo-ō	女王	*Toji*	刀自
Niyo-giyo	女御	*Tō-shu-shi*	東豎司
Miyasudokoro	御息所	*Zas-shi*	雜仕
Kō-i	更衣	*Jō-dō*	上童
Kita no Mandokoro	北政所	*Ka-shi*	下仕
Mi-dai-ban-sho	御臺盤所		

The third rank on the list, namely that of *Kō-gō-gū*, is the title of the Empress consort, known popularly as the *Go Kōgōsama*. The two preceding titles are reserved for the mother and grandmother of the Emperor.

The court ladies have titles of office as well as their titles of rank.

DRESS OF THE EMPRESS.—ITSUTSU-GINU OR GO-I.

The principal upper robe worn by the Empress on ceremonial occasions goes by the name of *Go-i* or *Itsutsu-ginu*, meaning a robe of five thicknesses. This is a handsome garment of embroidered silk damask, made in five thicknesses at the edges of the sleeves and skirt, so as to give the appearance of a great number of robes one over the other. In the case of the sleeves the lower edging is the longest, each of the remainder setting back a little towards the outer or top, which is the sleeve proper. The colour of this robe differs in the various seasons and on various ceremonial occasions. The extra edgings are of varying colours different from that of the robe itself. The robe is long and hangs quite loose, is unconfined at the waist, being doubled over at the collar but opening below wider and wider towards the bottom, revealing the front of the red *Hakama*. The shape of the *Go-i* is oblong, with large oblong sleeves and open collar. The front edges of the skirt, however, unlike the ordinary female gown, have a curious jagged cut in them, giving, when folded over, a zigzag appearance to the edge of the robe.

UWAGI.

Over this is worn another garment of similar shape but of rather smaller size, which, following the outline of the *Go-i*, leaves about four inches of its edging exposed to view. This outer robe is called the *Uwagi*, that of the Empress being generally of purple silk It has the same notched edge, and in every respect follows the shape of the *Go-i*, with the exception of being a little smaller.

KARA-GINU.

Over this is worn a very short tunic, called the *Kara-ginu*, which scarcely reaches to the waist. The sleeves are also short, and reach about to the elbow, those of the *Go-i* shewing below. The *Kara-ginu* is made of much-prized Chinese silk of some bright colour; it hangs loosely over the shoulders, and is neither fastened at the collar nor waist.

MO.

In speaking of the ceremonial robes of the Emperor and princ an apron-shaped garment called *Mo* has already been described. Th ladies of the court also wear a similar garment, but it is worn behi over the *Go-i* instead of in front. The *Mo* may be described as a peculi apron-shaped piece of silk damask, with a broad band at the top, fro which it broadens down to the bottom in narrow plaits. To the top ba are attached two double bands somewhat narrower. Two of these ha down on each side to the length of 10 feet, and trail along the groun The other two, passing over the shoulders from behind, are tied in bow in front, the two ends hanging nearly to the knees, and form th means of fastening the *Mo*, which otherwise hangs quite loosely over the dress. The *Mo* is of white silk damask, embroidered with some handsome device in colour. The Empress generally carries as a device the Pawlonia Imperialis or the *Hō-ō* bird or Chinese phœnix, or some other Imperial emblem.

HITOYE.

Below the *Go-i* are worn two other robes, or sometimes more. The first of these generally goes by the name of *Hitoye*, being a robe similar in shape to the *Go-i*, but of one single thickness, as its name implies. All the under-garments of the female costume are long, whi most of those worn by the males are short, and the word *Hitoye* appli both to the male and female under-garment, though they differ i length. The edgings of the sleeves and the skirts of the *Hitoye* are a arranged to shew beyond the upper robes, and by this means appearance of great richness is obtained, for the idea of pomp and

display in Japanese costume is inseparable from a suggestion of quantity as well as quality in the robes. A lady of high rank thus appears, when seated, to be enveloped or smothered in clothes.

SHITAGI NO KOSODE.

Below the *Hitoye* is still another robe called the *Shitagi no Kosode*, which is a white under-dress or shirt, shewing only at the throat in the form of a white collar, the sleeves being short and the short skirts inserted in the mouth of the *Hakama*, which reach from below the breast to the feet. The *Hakama* or trowsers which are worn are invariably of a red colour, and generally go by the name of *Hiki-bakama* or *Uchi-bakama*.

UCHI-BAKAMA.

The *Uchi-bakama* resemble in every respect the *Shita-bakama* worn by the men. They are very long, forming bags to the feet trailing to some distance behind. They are fastened somewhat higher up, rather above the waist, and with them is generally worn, in addition to the white *Kosode*, a red silk dress called *Uchi-kinu*, to match the *Hakama*, the upper part only shewing, the rest being inserted in the mouth of the *Uchi-bakama*.

KAKE OBI.

The *Obi* or belt, which forms so important a feature of the ordinary popular costume, is in the court costume a comparatively narrow and insignificant piece of apparel. It goes by the name of *Kake Obi*, and is about five inches wide and eight or ten feet long, being wound round the waist above the *Hakama*. The *Kake Obi* is sometimes of red silk, resembling the *Hakama*, but that worn by the Empress is generally of white damask, embroidered with flowers or birds.

HEAD DRESS.

In all time and in all parts of the world the arrangement of the hair has played a most important part in the adornment of women. In

Japan the art of hair-dressing has attained a completeness which for complication and variety of arrangement will compete with that of any country. Most of the modes of hair-dressing are dependent upon the use of a certain amount of false hair and padding, and copious employment of oil to give stiffness to the shape. The fastidious may be reminded that neither one nor the other are quite unfamiliar to ourselves or our ancestors. The fact that the use of false hair, cosmetics and other necessary and legitimate aids to the art of adornment is carried on *sub rosa* with a kind of *mauvaise honte* in Europe, does not do away with the truth that nine ladies out of every ten find such aids essential, and employ them more or less. It is a matter of history that in the fourteenth and fifteenth centuries, when the ladies of the European courts wore enormous horn and heart-shaped head dresses, these elaborate constructions were so richly anointed and so long unchanged that they often became living nests before they were taken to pieces. The ordinary head-dress of the Japanese is cleaned and remade once in two or three days, and the more complicated and rigid constructions of the court ladies once in every seven days. This of course allows for retouching and reinstating during the intervals of remaking. The head-dress of the Empress and Imperial concubines is entirely different from the ordinary ladies' head-gear. The hair is drawn well back from the forehead and brows, and spread over an arched cane coring into a broad flat disc-shape behind, ending below in a long hanging tail some seven feet long, the natural hair being lengthened by the addition of false hair in its length.

YEMOTOYUI.

The point at which the mass of hair is gathered in, when the tail commences, is bound with a handsome silk band, called the *Yemotoyui*, knotted into some fanciful shape. From this point the hanging hair is bound for some distance at intervals of every five inches with red and white paper cords called *Motoyui*, the extreme end being allowed to fray out over the *Mo*. Sometimes there are two shorter tails of hair, one on each side of the long principal tress, hanging down about one foot long, and some of the under hair is brought forward to the front in such a way as to shew as a fringe in front below.

SUBERAKASHI.

The whole style of head-gear goes by the name of the *Suberakashi*. On the crown of the head a portion of the hair is raised into a round crest, in front of which is fixed a curious metal ornament tied to it by silk cord and fastened by hairpins. This ornament consists of a round disc of metal, with three radiating horns of gold, forming a sort of diadem just over the forehead. The long ornamental hairpins *(kanzashi)* worn by the middle classes and the comb are not used with this mode of hair dress. During high ceremonies a similar head-gear is worn by the other ladies of the court, and even the Imperial female servants have their hair dressed in a somewhat similar manner, the chief difference being the absence of the diadem, and the comparative shortness of the hanging tress. For less ceremonial occasions the hanging tress is wound round at the back of the head and looped round a large tortoise-shell pin used for the purpose. In many pictures the hair of the court ladies will be observed hanging, apparently loosely and without padding, from a centre parting over the back. The hair is in this case tied behind into a hanging tress or tail, but the arched internal coring and the oil which gives to the more ceremonial head-gear its rigidity is in these cases omitted. Such a mode is worn upon unceremonial occasions, or by the female servants of the court. In place of the *Shaku*, which is held by the men, the ladies of the court hold in the right hand a handsome gilt and painted wooden fan called *Hi-ōgi* or *Yokome Ōgi*. These fans are made of broad thin scales of white wood, painted and gilt, and adorned with handsome silk rosettes and tassels.

The garments thus far described are such as are worn by the Empress, princesses and court ladies of highest rank. The ladies in waiting are classified according to different offices and duties, such as personal waiting attendants, ladies of the wardrobe, departments of needlework, arms, food, wine, etc. The younger waiting maids of inferior rank wear no *Mo* or *Hakama*, and in place of the large-sleeved *Go-i* and *Uwagi*, the *Kosode* of red colour is worn as a loose robe hanging to the ground fastened by an *Obi*, and over all is worn a loose robe with long sleeves split up at the back, but sewn up in a bag-like form in front, leaving an opening of some inches for the hands. This large loose

robe, called the *Uchi-kake*, is not fastened at the collar, but hangs loosely over the shoulders trailing behind. The *Obi* is broad, of a green colour, and fastened in a handsome bow behind, the whole costume, with the exception of the hair,—which hangs down loosely behind,—much resembling the ordinary costume of the ladies of the country. Under the red *Uchi-kinu* is worn the white *Hitoye*, the edge of which shews at the skirt and at the collar and sleeves. The *Uchi-kake*, worn as it is over the *Obi*, has an appearance of prominence behind, where it covers the bow of the sash, such as a few years ago the ladies of some European countries attained by other means. The *Uchi-kake* may be observed in many pictures of the noblewomen of the country, and is frequently to be observed in the theatres. It takes the place of the common *Haori* worn by the *Bu-ke* and middle classes, being a ceremonial robe worn over the ordinary robe and *Obi*. It is sometimes very handsomely embroidered with flowers or large devices, and is worn, like the *Haori*, loosely over the shoulders or fastened by a loose cord, leaving the breast uncovered by it. The lower classes of Imperial female servants are dressed in a simple white robe with a wide green sash.

KATSUGI.

On the occasion of out-door excursions on the part of the court ladies for the purpose of country amusements or visiting temples, very often an over-robe called the *Katsugi* is worn in the autumn months. This is a large loose robe, having the upper portion lengthened to form a hood, which is worn loosely over the head and body without fastening, forming a kind of loose cloak with large sleeves reaching to the heels.

The modes of attire of the younger daughters of the nobles, in fact of all ladies among the noblemen's families who were not present at the court, differed little from the dress of the ladies of the *shi-zoku* and middle classes. The chief differences were in the modes of tying the *Obi* and the style of the hair. These distinctions will be referred to when considering the subject of the popular costume of the country.

LIST OF BOOKS CONSULTED.

Shō-zoku Dzu-shiki	裝束圖式
Shō-zoku Shū-yō-shō	裝束集要抄
Shoku-mon Dzu-ye	織文圖會
Shō-zoku Shoku-mon	裝束織文
Kottō-shū	骨董集
Niyo-kuwan Shō-zoku Dzu-shiki	女官裝束圖式
Fuku-shoku-dzu-kai	服飾圖解
I-mon Shō-zoku-shō	衣紋裝束抄
Zoku Shō-zoku Dzu-shō	續裝束圖抄
Miyako Fū-zoku Kes-shō-den	都風俗假粧傳
Riyō no Gi-ge	令義解
Shoku-gen-shō	職原抄
Ku-ji Kon-gen Shū-shaku	公事根源輯釋
Kuwam-bō Dzu-ye	冠帽圖會
Rei-fuku no Dzu	禮服之圖
Kuwam-puku Dzu-shiki	官服圖式
Shō-zoku Shū-sei	裝束集成

CONTRIBUTIONS TO THE AGRICULTURAL CHEMISTRY OF JAPAN.

By Edward Kinch, Professor of Chemistry.

[*Read June 8, 1880.*]

I feel considerable diffidence in bringing forward the subjects introduced in this paper in a necessarily very imperfect state, but have been induced to do so owing to representations made to me that the general public holds very divided opinions on most of the matters here touched upon, and especially on the subject of the natural fertility of the soil of this country; and another inducement has been the belief that the placing on record even of a small amount of facts will be of use to other labourers in the same field, among those who may be fitly called the missionaries of science in Japan. The majority of recent writers on Japan seem to have made statements founded on and leading to the belief that the soil is naturally possessed of very great fertility, although residents in the country appear generally, but by no means unanimously, to hold opinions to the contrary; it appeared therefore to be not without interest to look into the older writings on the country, in order, if possible, to follow the growth of opinion. The letters of the earlier missionaries contain, as far as my knowledge of them extends, only general and rather vague statements, but the impression left is certainly not that Japan is a highly fruitful land, although in it the art of agriculture had been at that time brought to a very considerable state of perfection. J. Petrus Maffeus[1] says: "The climate, for the most part, is snowy and cold, and the soil not very fruitful."

[1] Lib xii. Quoted in the "Atlas Japanensis," London, 1670.

On reference to Kæmpfer we find, in the English edition, that he says:[2]

"The soil of Japan, in itself, is for the major part mountainous, rocky and barren, but through the indefatigable care and industry of the natives, it hath been made fruitful enough to supply them with all manner of necessaries, besides what the neighbouring sea affords of fish, crabs and shells."

And again:[3] "It is not in the least surprising, considering either the peculiar happiness of the Japanese climate or the industry of its laborious inhabitants, that the country affords so large a stock, and such an infinite variety of plants and fruits, both wild and cultivated, as it may deservedly boast of."

In the same chapter he remarks that no nation understands the art of agriculture better than the Japanese, and speaks of the hills and mountains being cultivated to their summits, and says that there is not a foot of land which is not turned to profit.

Charlevoix remarks:[4] "Quand le Japon ne renfermeroit pas dans son sein les Métaux les plus précieux, il n'en feroit moins un des plus riches Pays du monde, s'il est vrai que le bonté du climat, la fertilité de la terre and l'industrieuse activité des Habitans d'un Pays sont ses véritables richesses." After praising their sobriety and politeness, and pointing out that good results to the national character have followed from the fact that the Japanese had been for two thousand years without foreign commerce and had therefore to depend on themselves for all the necessaries of life, he goes on: "Car on conçoit aisément qu'un Peuple extrêmement nombreux, qui habitoit un Païs assez peu fertile de son propre fond, and qui n'a jamais pu comprendre, ni goûter qu'il dût dépendre de ses voisins, pour avoir le nécessaire, a dû chercher daus son industrie et dans son travail de quoi suppléer à

[2] Historia Imperii Japonici—germanicé scripta ab Engelberto Kæmpfero. Translated from the author's manuscripts by Johannes Casparus Scheuchzer. London, 1727. Book I., chap. viii., p. 103.

[3] Chap. ix., p. 113.

[4] Histoire et Description Générale du Japon; par le père de Charlevoix. 9 vols. Paris 1736. Tome viii., chap. x. De la fertilité du Japon; des plantes and de l'agriculture.

ce que la Nature lui avoit refusé. Aussi a-t'il poussé l'Agriculture plus loin qu' aucun autre, et il a par ce moyen fait nâitre l'abondance du sein de la stérilité."

He also says that the highest mountains are cultivated, and remarks on the manuring and the proportion of the yield of the land going to the proprietors: and also on the superior quality of the Japanese rice over that of the Indies, and that it is so nutritious that foreigners, who are not used to it, are obliged to use it in moderation.

That accurate observer, C. P. Thunberg, observes in the preface to his "Flora":[5] "Estque haec copiosa pluvia caussa summæ fertilitatis Japoniæ," and "Ipsum solum heic utplurimum argillosum et quandoque etiam in quibusdam locis, magis sabulosum, minus tamen per se, quam quidem per indefessos et incredibiles indigenarum labores fertile." In his travels[6] he remarks on the great state of perfection to which agriculture was brought, and says that not a foot of land was unused; or, when once cultivated, allowed to again become waste, and that the mountains were cultivated to their highest summits. Any one leaving his land uncultivated loses it, and another cultivating it becomes the owner. More than once he speaks of the "unbeschreibliche Mühe und Sorgfalt" bestowed on the soil and on the operations of manuring.

In describing his journey from Ōsaka to Miyako and thence to Yedo, he gives much information about the agriculture and botany of the country through which he passed, expressing his gratification at the cultivation and the delightful appearance of the country, but his disappointment at the freedom from weeds which the fields displayed, thus giving him but little chance to botanise. Nearly all his observations and remarks are very accurate, and are of course equally applicable to the present day; but like all travellers who were confined to the main roads, he states that all land not too steep or rocky for cultivation was under crops.

Coming now after a lapse of considerably more than half a century

[5] Flora Japonica. Lipside, 1784, p. xii.

[6] Reise. . . . hauptsachlich in Japan, in den Jahren, 1770-1779. Berlin, 1794. Band II. Abschnitt IV. Von der landwirthschaft, besonders dem Ackerbau, der Japaner. Pp. 55-73.

to Siebold, we find in his *Nippon*,[7] the first and only yet published analysis of a Japanese soil, with a description of the same, of which the following is an abstract. The analysis, as will be seen, is rather rough.

The soil examined (locality not given, but perhaps from Uji) was a fine grained mixture of a yellow-gray colour, with the appearance of a strongly ferruginous clay. In the sample were two small stones, one of porphyry and one of grauwacke.

A chemical analysis of the air-dried soil showed that it had the following percentage composition:

Silica	53.0
Ferric oxide	9.0
Alumina	22.0
Manganese oxide, Magnesia	.5
Calcium sulphate	.5
Humus	1.0
Phosphoric acid	trace
Water	14.0

The soil was digested in hydrochloric acid and all the silica was found to be combined. An experiment was made to determine the potash, which was found to be present in traces only. Carbon dioxide was absent, and therefore the lime is put down in the form of sulphate. The soil has considerable powers of absorbing water, owing to the large amount of clay it contained; the air-dried soil, when moistened, took up 87.5 per cent of water, of which 50 per cent was lost on exposure for 24 hours and the whole in 72 hours. The method of determining the humus was defective, and some of the loss on ignition put down as water was undoubtedly organic matter. The soil is a strong clay containing but little humus, lime, magnesia, alkalies or carbonic acid, and cannot be accounted fruitful: it requires abundant manuring and addition of alkalies. It appears to be a weathered clay-slate.

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[7] Nippon. Archiv zür Beschreibung von Japan, etc., von Ph: Franz von Siebold. Leyden, 1852. Band V. Abtheil. VI. Landwirthschaft U. S. W. Anbau des Theestrauches und Bereitung des Thee's auf Japan pp. 17-19. Chemical Examination of the earth of a Japanese tea plantation, by Dr. Th. Fr. L. Ness von Esenbeck and L. Cl. Marquart.

In the report on the Agriculture of Japan by D. S. Green to Commodore Perry, it is remarked that "the bottoms" or intervals of the mountains "are naturally level plains or are made so artificially. They are very rich and their fertility is aided by irrigation." "The soil" near Yokohama "was a beautiful black mould, with some clay and gravel intermixed." On the sides and summits of the hills near Shimoda "the soil is a red clay, but poor, and the crops thin—not producing more than 6 to 10 bushels per acre. In the plains the yield is not very large, being, on an average, not beyond 15 bushels."

In a report to the Minister of Agriculture at Berlin, on Japanese Husbandry, by Dr. H. Maron, member of the East Asiatic Expedition,[8] there are to be found some very interesting and instructive remarks on the soil, manuring and cultivation of the soil of this country. He is not inclined to decide whether the present fruitfulness of the soil is simply the artificial product of cultivation continued for a period of several thousand years, or whether this fertility extended from the beginning, making the people love the labours of agriculture; but it must be granted that the soil, the climate and the abundance of water, afforded the conditions and means for a thriving cultivation, which have been most carefully turned to account. The *abounding wealth* of the soil in mineral constituents is, however, spoken of. The main distinctions between European and Japanese farming are pointed out, and comparisons drawn generally in favour of the latter. One very important fact is pointed out, although its full significance is hardly appreciated, viz., that "the Japanese husbandman never breaks up a plot of land, unless he possesses a small stock of manure which he may invest in the ground; and even then he only cultivates this new plot to the extent his supply of manure will permit." I am scarcely prepared to admit that the Japanese farmer is so much more farseeing and provident of the future than his Western *confrères*, or to refer this custom to his unwillingness to impair the productiveness of the virgin soil, but rather look upon it as a usage derived from the teachings of stern necessity. The soil without manure does not repay the labour and capital necessary to its cultivation.

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[8] Annalen der Preuss. Landwirthschaft. 1862. January. Reprinted as an appendix in Liebig's "Natural Laws of Husbandry."

Sir Rutherfood Alcock [9] continually speaks of the great fertility of the soil in the neighbourhood of Yokohama and Hakone.[10] A valuable note of Capt. Vyse is quoted, in which a custom of the Japanese farmer, too often overlooked, is pointed out: "Again, what might appear to some persons to be waste land is not so." "The Japanese so regulates his land that each part will have time to rest and recreate itself for several years. But while this desirable object is aimed at, no part of the land is allowed to remain perfectly idle." "Thus, when not producing edible crops the land is planted with trees, ... and by the time that it is again brought into cultivation, these trees turn out useful timber." This custom is perhaps not quite so universal as one might think from this note, but many of the parcels of land generally put down as waste or uncultivated are being thus fallowed.

Of the neighbourhood of Nagasaki, however,[11] Alcock says: "In some places the nakedness and poverty of the soil could not be entirely concealed; and pure sandstone cropped up so divested of soil that it seemed a marvel how trees of any kind could find sustenance in their vicinity."

Again: "During the first part of this journey," from Nagasaki across Kiu-shiu, "the extreme richness and fertility of the soil were in striking contrast with the apparent poverty of those who lived upon it."

"The mountains were sandstone. . . . . It could be traced everywhere in the soil, so much so that nothing but centuries of manuring of the most fertilising kind, and an unlimited supply of water, with all the patient toil of a Japanese population, could ever have brought it into the crop-bearing state."

Near Ōsaka: "The soil was of the same sandy character as in Kiu-shiu."

On a journey from Ōsaka to Yedo: "The same sandy character of the soil . . . continued until we approached within sight of Fuji-yama, when it was exchanged for the dark rich mould which alone is to be seen within a hundred miles of Yedo."

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[9] The Capital of the Tycoon. 2 vols. London, 1863.

[10] Vol. I., see pages 68, 201, 295, 315, 409, 416, 431, 453.

[11] Vol. II., see pages 71, 74, 76, 107, 139, 140.

In an appendix to Alcock's book, by Mr. Veitch,[12] speaking of the agriculture of the district of Yokohama and Kanagawa, he says: "The land in this neighbourhood is exceedingly fertile, a friable loam extending to a considerable depth and easily worked. There is a great amount of waste land which might be cleared at a very slight expense, and cultivated if necessary; but, on the other hand, there is not a spot which, having been once under cultivation, is not taken the best advantage of." "Cropping and the rotation of crops are thoroughly understood by the Japanese."

He also remarks on the cleanliness and order every where prevalent, and the freedom from weeds, a point very striking to all observers.

In the reports of Horace Capron and his collaborateurs on Yezo,[13] mostly written in 1873 and 1874, are very many statements to the effect that the soil, especially in the valleys, is remarkably fertile. The soil of Nippon (meaning the main island) is said to be "one of the richest in the world."

Of Yedo: "If the natural products of a soil are any indication of its fertility or climate, this island will compare favourably in these respects with some of the wealthiest and most populous portions of the United States." "The crops looking well, giving promise of an abundant harvest, setting at rest the much mooted question of the natural fertility of the soil, and the generally favourable character of the climate." "The natural fertility of this soil"—on the banks of the Yoichi river at Kawa Higashi and Kawa Nishi—"is rich beyond comparison." "And on the other slope the Oshamanba river discharging itself into Volcano Bay from valleys of unsurpassed richness." "The soil throughout,"—the divide between the Yoichi and Oshamanba rivers,—"is very rich, and great fertility is observable high up on the mountain slopes, as shown by the rank growth of weeds and plants which will only grow on very rich soils."

It is needless to multiply extracts in this place. It will be observed, however, that the botanist and geologist of the party are more cautious in expressing their opinions.

[12] Vol. II., pp. 475-490. Notes on the Agriculture, Trees and Flora of Japan. By J. G. Veitch.

[13] Published by the Kai-taku-shi. See pages 49, 59, 67, 83, 84, 87, 249, 250, 255, 256, 266, 269, 308, 309, 315.

More recent reports do not tend to favour the idea that the soil of Yezo is in many places naturally of surpassing fertility, but rather that it requires abundant manuring.

In the work of Mr. Griffis[14] we find the following remarks: "Of the soil more is known. Even in a natural state, without artificial fertilization, most of the tillable land produces good crops of grain or vegetables. On myriads of rice field, which have yielded richly for ages, the fertility is easily maintained by irrigation and the ordinary application of manure, the natives being proficient in both these branches of practical industry." "The labours of centuries have brought every inch of the cultivable soil in the populous districts into a state of high agricultural finish."

In an appendix on Land and Agriculture: "Not one-fourth of the fertile area of Japan is yet under cultivation. Immense portions of good grass land and fertile valleys in Hondo, and almost the whole of Yeso assist the farmer's plow and seed, to return rich harvests." "Fifty bushels to the acre is a good average, though much of the land never gives so large a return." But before this he says that the number of acres under cultivation is 9,000,000 and the average crop under 30,000,000 koku: that is under 17 bushels per acre.

"Her pastures are capable, judging from known data, of keeping 28,000,000 sheep, yielding an average weight of five pound per fleece." "It has been demonstrated that Japan is a country eminently adapted to support sheep and the finest breeds of cattle, and has a climate suited to develop to perfection cereals, leguminous plants, and artificial grasses, such as red and white clover, alfalas, and the rye family."

Le Gendre,[15] notwithstanding his extensive views on the development of agriculture in Japan, is forced to the conclusion that (page 222), "rich as it is, the soil of Japan will not produce without manure."

From these extracts, which might have been considerably extended, it will be seen that the older writers, whose observations were for the most part, though not exclusively, made at Nagasaki and its neighbourhood, did not consider the soil as very fertile naturally; whilst a large

[14] Griffis. "The Mikado's Empire," 2nd Edition. New York, 1877.

[15] "Progressive Japan," By General Le Gendre. Yokohama, 1878.

number of the later writers, the majority of whom observed in the neighbourhood of Yokohama, have propagated the opinion that the soil is exceedingly fertile. I am inclined to doubt, however, if this opinion has any considerable hold on the minds of the observing part of the foreign residents in this district.

It is also evident that the word "fertile" is used in two senses, and probably in each of these senses has a different shade of meaning to each individual; a fertile soil sometimes used to mean one which is not a desert nor absolutely barren, but covered with some green growth in the summer; and at others, to mean one agriculturally productive. Between these two meanings there is a wide varying space, since for the plant to be productive from an agricultural point of view it must produce far more than in its natural condition; nevertheless the words are, I believe, often used in these two senses in the same sentence and even at the same time; and in a large number of cases the word "fruitful" would more accurately express the writer's meaning, and this without any ambiguity.

To a new-comer the verdure of the country everywhere and especially in the spring and summer is very delightful, and imparts high expectations of the productiveness of the land, and even the more cautious observers are sometimes led away by the abundant growth of wild plants in some favoured localities. It is overlooked that plants growing in a state of nature remove nothing from the soil, but rather add constituents derived from the atmosphere, and at the same time the processes of weathering are going on, tending to ameliorate the soil; whilst the growth and removal of an agricultural crop is necessarily exhausting in its nature.

It is worthy of note, also, that the trees and plants, which add so much to the beauty of a Japanese landscape throughout the year, consist very largely of coniferous trees and other evergreens, plants which tend the least of all to draw upon the resources of a soil, and whose mineral constituents are less and consist more largely of silica than those of deciduous trees and other plants.

Besides the fact mentioned above, that the Japanese farmer does not break up any ground unless he has a supply of manure for the same, we find that his experience has crystallized into a proverb: "*Shin-den*

wadzuka ko hō-nen"—a new field gives but a small crop; which also means by a play on the characters, "*Nin-gen wadzuka go jū nen*"—human life is but fifty years.

The statement made by the older writers, that the mountains were cultivated up to their summits, was of course derived from observations near Nagasaki, and although the cultivation in terraces on the mountain slopes is carried to a greater extent in Kiu-shiu and on the island shores of the Inland Sea, yet even here one is inclined to think from present observation that the writers have made use of the traveller's prerogative.

As this statement is still circulated and is found in places where more accurate information might be expected, it may be worth mentioning that, according to the most trustworthy data obtainable, there are about 28½ million *chō* of land in Japan, of which less than 4½ million are cultivated. Of the remainder, an immense area is capable of cultivation. What strikes a traveller in the interior is that nearly all spots to which a supply of water could be easily brought are utilized for paddy culture, though the surrounding slightly higher land may be uncultivated.

A very large portion of the cultivated soil of Japan is of volcanic origin, and very much of the remainder is derived from igneous rocks. Of the former much is, like the great plain of Musashi, derived directly from volcanic tufa and ash.

From my own observation I am led to the opinion that nearly all the igneous rocks of the main island of Japan, whether plutonic or volcanic, belong to the acidic group; thus the volcanic rocks are nearly all of a trachytic or phonolitic nature, and the plutonic rocks mostly granites, quartz, porphyries and felsites. Gneiss is not uncommon. The stratified rocks also are mostly silicious shales and tufas.

Speaking of Kiu-shiu, Richthofen says (I have not been able to refer to the original) the rocks are mainly Siberian and Devonian, accompanied by granite. In Satsuma the various families of volcanic rocks have arrived at the surface in exactly the same order of succession as in the case of Hungary, Mexico, and many other volcanic regions, viz.—1st, propylite or trachytic greenstone; 2nd, andesite; 3rd, trachyte and rhyolite; 4th, the basaltic rocks.

Antisell, speaking of the geology of Yezo, says there are there two

distinct mountain systems; one coming from Saghalien and passing down the west shore of Yezo to U-go, U-zen, etc., and the other coming from Kamtchatka and the Kuriles running N. 20°-25° E. to S. 20°-25° W. and crossing the first. The first is essentially granitic and felspathic, and is slow of decomposition. The second is volcanic and yields basalts, traps and diorites, decomposes readily, producing deep and rich soils. Hence the difference in vegetation on the two chains.

My friend Mr. William Gowland, of the Imperial Mint, Ōsaka, has kindly forwarded me the following valuable note on the rocks of districts in which he has travelled, together with determinations of silica in characteristic specimens of many of them.

"So far as my observations have gone, I have come to the conclusion that the trachytic and phonolitic groups, together with hornblendic granite and a syenite are decidedly the most extensively prevailing rocks in Japan. (By syenite I here mean a rock of granitic structure, with white felsitic base containing crystals, often large, of hornblende and of felspar: mica sometimes is present). Next in importance to these are felsites and quartz porphyries. Of stratified rocks there is a very extensive series of highly silicious metamorphosed shales. Basalts are rare. Members of the trachyte group form the chief rocks of the following mountains, and besides occur extensively in the districts surrounding them:—Chō-kai-san and Gassan in Dewa; Tateyama and Yakeyama in Etchiu; Norikura and Kiso-no-Ontake in the Shinano-Hida range; Haku-san in Kaga; the Nikkō range; the Hakone range and the mountains of the Wada tōge, Nakasendō."

These acidic rocks all contain more silica than the corresponding basic rocks, namely, basalts and the greenstones, diorite, etc., which are rare in, but by no means absent from, this country; and although they are generally fairly rich in potash, they contain less lime and aluminium and iron oxides than the basic rocks. I believe also that the evidence, as far as it goes, is that these acidic rocks contain less phosphoric acid than the basic rocks; in comparatively few rock analyses has this ingredient been determined, and the specimens being from scattered localities and examined by different analyses, the results are somewhat variable, though on the whole they tend to show that the basic rocks are richer in phosphoric acid, as might indeed be

inferred. The most important of these determinations are by Nessler and Muth,[16] who examined a large number of dolerites and trachytes for phosphoric acid, potash and soda, as well as making more complete analyses of other rocks; by Storer and Henshaw,[17] who give the results of a large number of analyses of different New-England rocks; and by Stöckhardt.[18] The quantity of phosphoric acid in most igneous rocks is remarkably high when compared with that present in most of the sedimentary rocks and in soils. The main results are as follows: in basalt the phosphoric pentoxide varies from .5 to 1.11; in granite from .13 to .58 and in one case 1.19; in trachyte from .36 to .66; in dolerites from .87 to 1.1; in phonolites from .16 to .24, and in felsite porphyry .21.

The basalt of the Schiffenberg near Giessen was found by Winter and Will[19] to contain 5 per cent of phosphorus pentoxide, with 44.04 per cent of silica.

In a trachyte from Wolferdingen in the Westwald, A. Hilger[20] found 3 per cent of phosphorus pentoxide and 59.87 per cent of silica.

The analyses of Japanese rocks hitherto published are very few, and in this direction I can add but little to our knowledge. In the *Zeitschrift der Deutschen Geologischen Gesellschaft*, 1877, p. 377 will be found an analysis of the lava of Ōshima (Vries Is.) by Dr. O. Korschelt. This is a basic rock containing 52.42 per cent of silica and is classified by the author of the paper, Dr. E. Naumann, as an augitic andesite. This lava is very rich in magnetite, containing more than twelve per cent.

In a paper by J. Rein[21] is an analysis of the prevailing rock of Mount Fuji, which is also a basic rock. The author says dolerite prevails, and no where is there any trace of trachyte or obsidian. A

[16] Ber. über Arbeit S. Grossh. Versuchs-Stat: Karlsruhe 1870 and Jahresbericht für Agricultur-Chemie. xiii. 18.

[17] Bulletin of the Bussey Institution Vol II. 1877 and Jahresbericht für Agricultur-Chemie. xx. 4.

[18] Landwirthschaft. Versuchs-Stationen. 1859.178 and 1811.105.

[19] Jahresbericht für Mineralogie. 1877, 102—103.

[20] Jahresbèr. für Mineralogie. 1877, 421.

[21] Der Fujiyama and seine Besteigung von J. Rein. Petermanns Mittheilungen, 1879, Heft X.

specimen of the rock was examined by Prof. Von Fritsch and his assistant Dr. Südecke, both chemically and microscopically. The chemical analysis was as follows:

Silica	52.0	per cent.
Alumina	16.8	"
Iron oxide	13.6	"
Magnesia	2.0	"
Lime	14.6	"
Potash	.9	"
Soda	.1	"

To Dr. O. Korschelt I am indebted for the following analyses of rocks, most of which were collected by Dr. E. Naumann and selected by him as typical specimens.

	TUFA FROM KADZUSA.	TUFA FROM KADZUSA.
Silica	60.10	57.00
Ferric oxide	3.67	25.75
Alumina	19.62	
Lime	1.50	8.24
Magnesia	1.69	2.65
Potash	2.68	
Soda	3.32	
Sodium Chloride	.26	
Water	7.21	5.20
	100.05	98.84

	ANDESITE FROM USUI TŌGE BETWEEN KŌDZUKE AND SHINANO.	ANDESITE FROM BAN-DAI SAN, IWASHIRO.	ANDESITE FROM TATEYAMA, ETCHIU.	TRACHYTE FROM HARUNA, KŌDZUKE.
Silica	55.74	60.00	67.52	61.93
Alumina	20.45	19.06	17.30	20.58
Ferric oxide	6.44	5.13	2.62	2.27
Lime	8.33	7.32	3.41	4.87
Magnesia	3.79	2.85	.08	2.81
Soda	5.74	4.57	7.07	4.90
Potash	1.90	2.72	3.05	3.06
	102.39	101.65	101.05	100.42

	DOLERITE FROM FUJIYAMA, SURUGA.	FROM IGA-SHIMA, SHI-KOKU.	ANDESITE FROM ŌYAMA, SAGAMI.
Silica	50.77	54.87	59.89
Alumina	16.81	21.16	15.32
Ferric oxide	10.17	10.56	10.67
Lime	9.37	1.28	5.15
Magnesia	3.43	4.30	2.66
Soda	5.76	5.68	3.55
Potash	1.78	3.29	1.40
	98.09	101.03	98.64

The excess over 100 which is found in some of these analyses is, I think, partly due to all the iron being put down as ferric oxide, whilst in some cases much of it exists as magnetic oxide, and some perhaps even in a less oxidised state.

The only other analyses of rocks that I can bring forward are some determinations of silica in several specimens of rocks made by Mr. Gowland, who has kindly placed his results at my service. These are: Andesite from Tateyama (Etchiu), specimen from a hexagonal column containing silica 59.14 per cent; this is the characteristic rock of the older volcanoes. In the Jigoku-dani, Tateyama, the rock becomes sonorous and sub-fissile, and then contains silica 68.41 per cent. Porphyritic trachyte from the summit of Haku-san, Kaga, a dark felspathic base containing large crystals of striped felspar and of hornblende, silica 58.41 per cent. Lower down the mountain this rock is close-grained and fissile; and in the neighbourhood of Katsuyama in Echizen it is split into slabs and used for various purposes.

Felsitic rock from Rokkō-zan, Hiyōgo ken, silica 77.17 per cent. Brecchia-porphyry from Yari-ga-take, Shinano, greenish in colour and of which rock nearly the whole mountain is composed, silica 62.02 per cent. Trachyte very hard and difficult to work, used for building, from Idzu (?), silica 62.35 per cent. Trachyte used by the Railway Department, unknown locality, a green wackenitic variety; silica 62.87 per cent.

Rock from the Idzu promontory, which is, on account of its associations, probably trachyte, though its silica is rather low; green variety, silica 50.85 per cent; red variety, silica 49.85 per cent.

It will be seen that these rocks, with the exception of the last mentioned, the Fujiyama rocks and the recent lava of Ōshima, belong to the acidic division of rocks. When the new geological survey laboratory comes into work, we shall have fuller and more certain knowledge of the composition of Japanese rocks, and doubtless determinations of phosphoric acid in all characteristic specimens.

Of the soils of Japan several analyses have been made in the Laboratory of the Agricultural College, and the results of some of these follow. I must, however, here be allowed to warn the non-scientific part of my readers that the ordinary chemical analysis of a soil, by itself, conveys comparatively little information as to its actual state of fertility of that soil. So very much depends upon whether the ingredients of the soil are in a condition in which they are directly available or readily become available to the plant, and this can only be determined approximately by very elaborate series of analyses, occupying so much time that it is quite prohibited by the duties attached to a teacher's position in this country. Still, however, much valuable information may be obtained even from such analyses as those given below, when their meaning is not stretched too far and their interpretation is checked by observation in the field, and to the chemists of the society no apology will be necessary for recording the analyses in this form. Regarding the method of analysis, I need only remark that generally I have followed the methods given in Knops "Bonitirung der Ackererde." The gently ignited soil was extracted with hydrochloric acid of specific gravity 1.12: usually the soluble silica was not determined separately, but the whole evaporated to dryness, moistened with strong hydrochloric acid and boiled with water, therefore the soluble silica is included with the sand, etc. Manganous oxide also was rarely determined separately, and is therefore included with the alumina. The magnetic oxide of iron was determined by carefully washing the dried soil by decantation with water and extracting the magnetite from the residual sand with a magnet. Although this method will not give absolutely correct results, they will be fairly approximative.

The total combined nitrogen was estimated by combustion with soda-lime and collection of the ammonia generated in a standard acid solution.

Analyses of Soils.

1. Surface soil from the farm of the Nō Gakkō, Komaba, Tōkiyō.

2. Subsoil from the farm of the Nō Gakkō, Komaba, Tōkiyō.

3. Surface soil from the Governmemt farm (Boku yō jo), Shimōsa, Chiba ken.

4. Subsoil from the Government farm (Boku yō jo), Shimosa, Chiba ken.

5. Surface soil from the garden of the Kenchō, Chiba, Chiba ken.

PERCENTAGE COMPOSITION OF THE DRY SOILS.

	1	2	3	4	5
Loss on ignition, that is organic matter and combined water....	22.66	14.62	29.03	24.35	13.68
Sand, silica and insoluble silicates, etc.....	50.76	47.46	45.69	44.21	65.99
Ferric oxoide.....	8.07	11.80	22.84	10.28	17.31
Alumina (and manganous oxide)..	15.37	23.12		18.57	
Phosphorus pentoxide.....	.20	.26	.17	.16	.46
Lime	.79	.47	.56	.53	.55
Magnesia	1.41	1.15	.16	.45	.38
Potash	.09	.09	.44	.27	.28
Soda	.11	.13	.49	.15	.33
Chlorine.....	.06	.03	.62	1.03	1.02
Sulphur trioxide	.22	.22			
Carbon dioxide, etc., undetermined	.26	.65			
	100.00	100.00	100.00	100.00	100.00
Nitrogen	.44	.42	.43	.41	.23
Magnetic oxide of iron.....	2.50	.20	7.00	.59	
Air-dried soil retained water	23.67	30.78	11.62	20.30	6.75
Soil dried 100° C. reabsorbed water..	10.35	14.53	5.7	10.04	

Other samples of Komaba soil from a different part of the farm gave the following numbers:—

	SURFACE SOIL	SUBSOIL.
Phosphorus pentoxide	.22	.18
Lime	.40	.25
Potash	.23	.14

More extended observations on the hydroscopic power of these soils at different temperatures are wanted.

These soils represent pretty fairly the composition of the soil of the

great plain of Musashi, and of other places where the soil is formed of volcanic ash and tufa. It will be seen that in these and other cases the magnesia often exceeds in amount the lime in the soil.

Soils used for mulberry plantations, usually situated on the banks or in the beds of rivers.

6. From Inari, Shima-mura, Sai-gōri, Gumma ken; between two branches of the Tone-gawa.

7. From Shiro-shita, Uyeda machi, Ogata-gōri, Nagano ken; on the east bank of the Chikuma-gawa.

8. From Yanagawa-mura, Date-gōri, Iwashiro, Fukushima ken; on the east bank of the Abukuma-gawa.

9. From Ishida-mura, Date-gōri, Iwashiro.

PERCENTAGE COMPOSITION OF FINE SOIL DRIED AT 100° C.

	6	7	8	9
Organic matter and combined water	2.36	2.41	5.48	4.83
Sand and insoluble silicates	88.96	90.10	82.80	79.75
Ferric oxide and alumina	6.94	5.48	9.35	13.28
Lime	.45	.46	.37	.24
Magnesia	.12	.30	.66	.48
Potash	.27	.18	.31	.79
Soda	.29	.32	.17	.37
Phosphoric acid	.17	.19	.19	.18
Undetermined, Cl, SO_3, CO_2, etc.	.42	.56	.67	.08
Magnetic oxide of iron	1.16	4.98	.03	.07
Nitrogen	.17		.12	
Hygroscopic water in air-dried soil	1.00	1.00	4.80	2.70

These soils all contain large and varying quantities of stones consisting of more or less rounded and weathered pebbles and gravel of quartz, trachytic and phonolitic rock. The portion insoluble in hydrochloric acid in 6 and 7 consists of quartz, a good deal of mica, fragments of trachytic rocks and of the minerals contained in the rocks, augite, magnetite, etc. In 8 and 9 it is almost entirely quartz and mica: the weathering has proceeded farther in these cases. The large amount of silicious matter in the fine earth of these soils, apart from the stones, will be noticed: in the first two it amounts to about nine-tenths of the dry soil and in the last two to about eight-tenths. These soils have

very little power of absorbing or retaining moisture, and require frequent and liberal manuring. Soil 9 had, a short time before the sample was taken, been manured with leaves and the pruning of the mulberry trees and their ashes, which may partly account for the much higher percentage of potash found, and moreover the guarantees that the samples are taken in a manner to ensure a proper average specimen are not in most cases very strong.

Some soils have been examined which contained considerable quantities of ferrous compounds in a condition in which they were easily soluble in diluted hydrochloric acid and in which state they are poisonous to plants. One of these, from Kambara-gōri in Echigo, was a very sandy clay, containing mica and some magnetic oxide, and also a much larger quantity than usual of soluble saline constituents, these amounting to 1.28 per cent of the dry soil and being chiefly chlorides. Such a soil is unfruitful, but may be rendered fertile by drainage and the application of a heavy dressing of lime, which, in conjunction with the free access of air induced by dry cultivation, favours the oxidation of the hurtful ferrous compounds into harmless ferric oxide.

Another soil, containing much iron in the lower state of oxidation and therefore nearly barren, was from Yawata-bara-mura, Yamagata-gōri, Hiroshima Ken. This soil, like nearly all others containing ferrous compounds, was very deficient in lime, of which it contained only a trace; by treatment with lime, commencing with a heavy dressing and continuing the application in diminishing quantities for some years, and by well stirring the soil to allow of aeration, such soils may be ameliorated and rendered fertile. Even the small crops grown on these soils are poor in quality and appear to be particularly subject to the attacks of insects.

Although the chemical analysis of soils by itself gives only in some well defined cases any very certain knowledge of their relative fertility, and by ascribing a greater value to the quantitative expression of any one of the essential constituents of plant food than to any other, one lays himself open to a charge of unscientific reasoning, yet there is no doubt that in ordinary soils, possessing all the essential elements in a proportion and condition in which they will support ordinary vegetation, the relative agricultural fertility of the soil is determined to the greatest extent by the quantity of phosphoric acid present, and the next in value

of the so-called inorganic constituents of plants is potash and thirdly lime. Nitrogen in a combined and available condition is also a very essential constituent, but the full consideration of its different combinations and their relative degrees of availability is a subject of great complexity; it will be found, however, in soils of a like nature that the combined nitrogen often increases with the phosphoric acid. On this subject of the value of phosphoric acid as a measure of the fertility of the soil, a few recent researches may be instanced, some of which also bear on the question of the relative amounts of phosphorus in acidic and basic rocks.

M. Truchot in papers on the soils of Auvergne,[22] and on the fertility of volcanic earths[23] gives analyses of different rocks in a more or less weathered and friable state and of the soils formed from them. The ingredients especially determined were phosphoric acid, potash, and lime. In four granite stones of the Puy de Dôme the phosphorus pentoxide varied from .015 to .048; potash, .16 to .371; and lime, trace to .099. In 23 soils from such rocks and which were but of little fertility the phosphorus pentoxide varied between .021 and .095; potash, .015 and .718; lime, trace to .30. In trachytic stones each of these ingredients was higher, the mean of three characteristic specimens being lime 2.201; potash 8.775, and phosphorus pentoxide .131. In basaltic and recent lavas the lime and especially the phosphoric acid was again higher, the latter in one case exceeding one per cent; the mean of these specimens was CaO, 8.12; K_2O, 1.427 and P_2O_5, .88 per cent. So the soils formed from the volcanic rocks were much richer in phosphoric acid than the soils from the granite, the average of many samples being .32 per cent; they were by no means, however, generally richer in potash, but lime was more abundant.

The author concludes that the soils of Auvergne and volcanic soils generally owe their great fertility principally to their high contents in phosphoric acid and that this is a measure of their fertility. The granites form very indifferent soils, the trachytes soils naturally fertile

[22] Annales Agronomiques 1875. I. 535-551 and Biedermann's Centralblatt 1877, 84.

[23] Annales de Chimie et de Physique. [5] XIII. 264-271 and Biedermann 1878, 405.

but much less so than those derived from recent lavas. The nitrogen in these soils was found to increase with their fertility but not so regularly as the phosphoric acid.

Ad. Mayer[24] gives analyses of soils from Vriesland and notes on their rentable value. In these soils the value is in the order of their contents in phosphoric acid. In four sandy soils of Frederiksoord referred to in the same paper the phosphoric acid seemed to determine the fertility.

Josef Hanamann[25] in Basaltstudien of a rock from Pschanhügels near Chlümeau in Bohemia gives analyses of the original rock, the weathered crust and the earth formed from it. In the dry samples the phosphoric acid increased from .515 to .594 per cent and the potash from .85 to 1.165 per cent, whilst the lime decreased from 11.571 to 5.845 per cent. This basalt formed a very fruitful soil.

Analyses of soils on which several of the most esteemed Rhine and Main wines are grown by A. Hilger[26] show that these soils are very rich in phosphoric acid, in ten soils being from .212 to .926, in the same sorts the potash soluble in hydrochloric acid was from .216 to 2.601, most of them also contained a good deal of calcium carbonate, from 3.112 to 69.681. In some analyses of soils from the Bunter Sandstone near Spessart and Vogesen, R. Weber ((Biedermann's Centralblatt, 1879, Septr. p. 750) found that the plots growing deciduous trees, beech and oak, were richer in humus, in potash, in phosphoric acid and in soluble silica than those plots on which firs were growing. The phosphoric acid in the first case varied from 342 to 639 per.million and in the latter from 123 to 199; and moreover this ingredient was present in direct ratio to the fertility of the soil.

Whilst laying particular stress then on the value of phosphoric acid as an indication of the fertility of soils and placing next in value potash and then lime we must be careful not to make the statement too general, remembering always that different plants have different requirements and

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[24] Fühling's Landwirthschaftliche Zeitung 1877, 726-728 and Biedermann 1878, 15.

[25] Fühling's Landwirthschaftliche Zeitung 1878, 350 and Biedermann's 1878, 491.

[26] Biedermanns' Centralblatt für Agricultur-chemie 1879, 647.

different powers of making use of the same compound, that certain other elements are absolutely essential and that the mechanical condition and physical attributes of the soil, especially its relation to heat and moisture and its absorptive powers, are of the highest importance. I regret that I cannot now give any complete results of the absorptive power of any Japanese soils for ammonia or potash or their salts, or for heat under varying conditions. The absorptive power of the soil in this neighbourhood appears, however, to be high for soil containing so much sand. My regret is, however, the less, now that the subject of the rocks, minerals and soils of Japan, with their chemical and physical properties, will receive the undivided attention of the chemist of the Geological and Agricultural Survey lately established under the Kuwan-nō-kiyoku, rather than the fragments of time I have been able to devote to it.

It appears somewhat strange that these Japanese soils contain so little potash soluble in hydrochloric acid, through many are of trachytic origin, but the felspars of Japan seem to be in greater part not potash (excepting sanidine, which is abundant), and the micas are also chiefly, I believe, magnesia micas: the potash is also, up to a certain point, easily washed out of the soil.

Of course the potash represented in the analyses is by no means the whole in the soil, but only that which is extracted by hydrochloric acid; the remainder only becomes available to the plant exceedingly slowly.

A point of interest in connection with these analyses is that in every case magnetic oxide of iron was found in the soil, although in very varying quantities even in the same field. It generally exists in distinctly crystalline grains, though sometimes aggregated together and weathered on the outside. Magnetic iron sand may indeed be seen by nearly every roadside in the country, especially after rains and in the hilly districts and on many of the sea coasts, thus affording a continual proof of the practically non-oxidisable nature of this substance by atmospheric agencies, even when assisted by the agents at work in the soil.

The Japanese farmer treats his soil as a vehicle in which to grow crops, and does not appear to regard it as a bank from which to draw continual supplies of crops; thus he manures every crop, and he applies

the manure to the crop and not to the land. He does not seek to increase the condition of the soil for future crops to any extent: only in the case of the paddy land is the manure applied before sowing the seed or putting in the plants, and then only a short time before in the case of green manuring or the application of vegetable refuse.

Considered from this point of view, the majority of the soils of this district and many others are admirably adapted from their physical properties and attributes; but from a chemical point of view as a storehouse of available plant food they must be considered poor. J. Rein, in his paper on the climate of Japan (see these Transactions, vol. vi, part iii, p. 494), points out, what is too frequently forgotten, that warmth and moisture are the most important factors in the development of vegetable life and far more influential than the character of the soil. It is only where a copious annual rainfall is combined with a constantly high temperature, as in south-eastern Asia, the West Indies and Brazil, that we find the tropical luxuriance and abundance which have been so often extolled. He also points out that the Kuroshiwo has a decided influence on the climate and therefore on the productiveness of the land. A rather extensive series of field experiments on manures was instituted last year on the Agricultural College farm at Komaba, and although it would be rash to make general statements from the results of one season only, yet they showed the great importance of phosphates, and the practical failure of crops grown without liberal manuring. Some of the more interesting of the results of these experiments I may lay before the society at a future time, if they would be acceptable.

From the subject of soils we come naturally to the far more odorous one of manures. The mineral manures used here are lime, shell lime, wood ashes, straw ashes, ashes of weeds and burnt earth, nitre, salt, marl, and recently the ammoniacal liquor of gas works.

The limestones and limes examined have generally contained a considerable quantity of magnesia, which in large quantity is undesirable in an agricultural lime. A source of lime worth noting is a large deposit of fossil shells inbedded in sand in Gobu-mura-yama near Narita, Chiba ken, and about five *ri* from the sea. The shells are chiefly of the Echinoidea, a species of scutella. An analysis of an average sample gave:—

10.—PERCENTAGE COMPOSITION.

Water	1
Sand, insoluble in hydrochloric acid	42
Ferric oxide and alumina[37]	9
Calcium carbonate	44
Magnesium carbonate and alkalies	4
	100

Common salt is too expensive for an extended use, being made almost entirely by the evaporation of sea-water and salt springs.

The following are analyses of wood ashes and straw ashes as used for manure:

11. Wood ashes bought in Tōkiyō.

12. Matsu (Pinus) ashes; from an analysis by Dr. Korschelt.

13. Straw ashes.

	11	12	13
Water	12.15	....	11.15
Sand, silica and carbon: insoluble in hydrochloric acid	20.46	29.95	77.46
Soluble in hydrochloric acid;—			
Lime	22.13	28.72	2.18
Potash	8.25	3.38	7.00
Phosphoric acid	2.88	1.68	.53
Magnesia, soda, carbon dioxide, chlorine, sulphur trioxide, etc.	34.13	36.27	1.68
	100.00	100.00	100.00
Potash soluble in water	7.22	....	6.20

Gypsum might be advantageously employed in some places and some crops, and more extensive supplies should be sought for.

The specimens of crude nitre examined have contained a large percentage of potassium chloride, but comparatively little sodium chloride. The following is an example.

[37] Containing phosphoric acid .09 per cent.

	14
Water	1.35
Insoluble residue	.80
Magnesium sulphate	.57
Sodium sulphate	.65
Sodium chloride	5.19
Potassium chloride	34.92
Potassium nitrate	56.52
	100.00

Of vegetable manure the principal are sea-weed, the residues from different manufactures, *e.g.* rape cake, sesamum cake, cotton cake and other oil residues, as from camellia seeds, the residues from the manufacture of *shōyu*, *ame*, *sake*, *shōchiu*, indigo, etc., the husks and bran of grains, especially of rice, dried grass, leaves, and trimmings of shrubs and trees, these being often made into a compost. Green manuring with growing plants is practised to some extent on the paddy lands where some small leguminous plants, especially the milk-vetch, *Astragalus lotoides*, *Rengesō* or *Genge* is grown and turned in towards the end of April when in full bloom. The pretty pink and white flower of this plant forms at this time a pleasing feature in the landscape of a paddy valley and a rest to the eye, particularly in combination with the yellow blossoms of the rape. Pea plants when in flower are sometimes used as a manure for the rice fields.

Analyses of some of the most important of these vegetable refuse materials are given below; their value as manure depends almost entirely on the nitrogen they contain, but to a small extent on their ash constituents. The oil cakes, *ame kasu* and *shōyu kasu* are the most valuable. These manures should not be applied in quantity at the seed time in an unmixed state, owing to their fermenting and also attracting and harbouring insects, which attack the seeds and young plants.

15. Rape cake. *Abura kasu.* Residue from expressing the oil from the seeds of *Brassica sinensis*.

16. Sesamum cake. *Goma kasu.* Residue from expressing the oil from the seeds of *Sesamum indicum*.

17. Malt dust. *Ame kasu.* Residue from the manufacture of *Ame* from rice, millet and malt of wheat or barley.

18. Spirit residues. *Shōchiu kasu.* Residue from the manufacture of *Shōchiu* from *Sake kasu.*

19. Rice beer residues. *Sake kasu.* Residue from the manufacture of *Sake.*

20. Soy residues. *Shōyu kasu.* Residue from the manufacture of *Shōyu* from beans and wheat.

	15	16	17	18	19	20
Water	11.15	7.48	13.00	59.65	71.79	16.37
Ash	6.68	11.53	3.76	1.99	.57	4.96
Organic	82.17	80.99	83.24	38.36	27.64	78.67
Nitrogen	5.20	5.12	3.94	1.98	1.27	3.35
Water	11.15	7.48	13.00	59.65	71.79	16.37
Ash	6.68	11.53	3.76	1.99	.57	4.96
Oil	11.48	17.53	7.64	....	....	....
Nitrogenous matter	32.90	32.40	21.58	12.53	8.00	21.45
Fibre	18.10	10.00	10.80	....	....	....
Digestible carbohydrates	19.69	21.06	43.32	....	....	....

21. Rice cleanings. *Nuka.* Residue from the polishing of rice in wooden mortars.

22. Ditto.

23. Ditto.

24. Barley bran. *Fusuma.*

	21	22	23	24
Water	10.96	11.05	93.5	12.80
Ash	9.11	9.22	13.05	4.79
Organic Matter	79.93	79.73	77.60	82.41
	100.00	100.00	100.00	....
Nitrogen	2.12	2.14	2.23	1.75
Water	10.96	11.05	9.35	12.80
Ash	9.11	9.22	13.05	4.79
Oil	13.20	15.50	12.80	1.33
Nitrogenous matter	13.41	13.55	14.18	11.09
Fibre	7.66	8.60	10.68	9.58
Digestible Carbohydrates	45.66	42.08	39.94	60.41
	100.00	100.00	100.00	100.00

Nuka is used in washing the body as a substitute for soap, especially by women; and recently part of the oil contained in it has been utilised after extraction by pressure.

All these substances might be utilised to a greater or less extent as feeding materials for cattle, etc., by which means the oil which most of them contain in considerable quantity would be turned to account, and the nitrogenous matter and ash constituents rendered more immediately available for the plant after their passage through the animal. Indeed by such use their value would be largely increased, as the animal makes use almost entirely of the oxidisable constituents which have no value as manures and excretes nearly the whole of the manurial constituents; with the increasing demand for animal flesh in this country, doubtless these substances will be more and more so used. Some of them have before had a limited use in feeding poultry. The lower analyses in the above series give an indication of the relative value of these substances as cattle food, the oil cakes and *nuka* being of most value.

Another vegetable refuse material of considerable manurial value is that from the manufacture of indigo. A specimen from Echigo contained—

	25
Water	8.50
Organic and volatile matter, etc.	82.65
Mineral matter :—	
Silica and insoluble matter	13.21
Alumina and ferric oxide	8.30
Lime	16.35
Magnesia	8.58
Potash	2.95
Sodium chloride	.95
Phosphorus pentoxide	5.75
Carbon dioxide, soda, sulphur trioxide, etc.	7.76
	100.00

Combined nitrogen equal to ammonia 1.70 per cent.

In the list of animal manures, besides the great staple of excrementitious substances, especially that which is continually appealing so unpleasantly through our nostrils and causing us so often to live in a

"martyrdom of stench," there are fish and various fish residues, as the cleanings of the preserved fish and the residues after extracting oil from various species, bird's dung, silkworm excrements, silkworm chrysalides, hair, shells, and recently bones and bone superphosphate have come into use.

As specimens of the accessory animal manures I give the following:—

26. Fish Manure. *Hoshika.*

27. Fish Manure. *Nishin* (Herring) from Yezo.

28. Bird's Dung. *Chō-fun.*

29. Hair.

	26	27	28	29
Water	10.74	12.70	26.00	7.95
Organic matter	47.62	70.55	50.27	59.88
Sand and insoluble matter	33.14	5.40	13.10	32.17
Phosphates of calcium, magnesium, and iron	5.60	7.50	8.71	....
Calcium carbonate	1.60	.50	....	....
Alkaline salts	1.30	3.35	1.92	....
	100.00	100.00	100.00	100.00
Nitrogen equal to ammonia	4.51	8.47	4.16	11.4
Total phosphoric acid	2.81	4.85	3.25	....
Equal to tricalcic phosphate	6.13	10.85	7.09	....
Potash	....	1.45	1.09	....

26 is an average specimen of a whole fish manure. The quantity of sand is sometimes even higher, amounting to nearly two-fifths of the total weight.

27 is a good specimen of the residue after extracting oil by pressure from the herring, *Pellona elongata*, in Yezo; it is superior to most specimens; this contained 18.34 per cent of oil, and it might when fresh be used in small quantities as an adjunct to the food of animals; by its passage through the animal economy the phosphates and nitrogenous matter would be rendered more soluble and therefore more readily available to plants.

29 is the sweepings of fisher's shops and largely mixed with dirt and dust.

I will now give a few analyses and remarks on the, in general, more savoury and palatable subject of Japanese foods.

Rice, *kome*, is principally grown in paddy lands, *ta*, in the same way as in other eastern countries; there are said to be more than two hundred and seventy varieties of this, the staple grain. There are two principal kinds, viz., the ordinary rice, *uruchi*, and the glutinous rice, *mochi-gome*, specially used for making *mochi*, the new year's cakes. Each of these has three special varieties, viz., early, *wase*, medium season, *nakate*, and late, *okute*. Rice is also cultivated to a less extent on the dry lands, *hatake*, and is then known as *okabo*. This latter may be used for making *sake*, for which purpose the *mochi-gome* is not found to be suitable.

The total area of paddy land in Japan is estimated at a little over two and a half million *chō*[27] and the average yield of clean rice would appear to be about fifteen *koku*[28] per *chō*, that is about thirty bushels per acre.

Although after boiling there is a great difference to be perceived between *uruchi* and *mochi-gome*, yet in their proximate chemical composition there is scarcely any difference. The *mochi-gome* seems to contain a little more fat and generally more ash and less nitrogenous matter than the *uruchi*, but these differences are very slight, as will be seen by the subjoined analyses and also by those communicated to the society by Dwars (Trans. vol. vi., p. 63) and by Atkinson (Trans. vol. vii., p. 321.) This latter is, I believe, now investigating the difference between these two kinds of rice; it is probable that the difference will be found to reside in the nature of the albuminoids.

30. Common rice, *uruchi*, average of several specimens.

31. Glutinous rice, *mochi-gome*, average of two specimens.

	30	31
Water	12.8	13.0
Ash	1.2	1.4
Fat	2.0	3.0
Albuminoids	6.1	5.1
Fibre	4.0	4.5
Starch, etc.	73.9	73.0
	100.0	100.0

[27] A chō=2.4507 acres.

[28] A koku=4.9629 bushels.

The percentages of fat (ether extract) and of ash are higher than in the rice of other countries, as far as these have been analysed. In all these analyses the nitrogenous matters or albuminoids have been calculated by multiplying the total nitrogen obtained by a soda lime combustion, by 6.88. No attempt has been made to separate the different kinds of nitrogenous bodies.

The percentage of available ash constituents in rice is much less than that in wheat and other cereals, the pure ash not being more than one-half of that of the latter and in many cases much less. The percentage composition of the ash is much the same in each case, save that that of rice seems to contain rather more phosphoric acid and rather less potash than that of wheat, etc. It seems not improbable that the average diet of an ordinary native, living principally on rice, is rather deficient in some of the ash constituents and especially in lime, which will not in most cases be supplied by the drinking water.

Mr. C. J. Manning, of the Tōkiyō Fu Hospital, tells me that he has found that fractures and injuries to bones among the Japanese usually heal with extreme slowness, and often very imperfectly. This may be connected with the composition of their food; but before answering this and similar questions much work remains to be done in the examination of different foods, and a more intimate knowledge of the usual dietaries is required.

Different kinds of millet gave on analysis the following results:—

32. *Awa*, the variety *Shiro-awa*; *Setaria italica*, (Kunth.)

33. *Kibi*, the variety *Shiro-kibi*; *Panicum miliaceum*, L.

34. *Hiye*; *Panicum frumentaceum*, (Roxb.).

	32	33	34
Water	13.05	14.70	13.00
Ash	3.05	4.55	4.35
Fat	3.03	2.95	3.03
Albuminoids	13.04	10.89	11.78
Fibre	10.41	5.96	14.75
Soluble Carbohydrates	57.42	60.95	53.09

The ash and fibre in these is somewhat high, owing to the husk not having been perfectly removed; they were analysed in the condition in which they are sold for use.

Varieties of *awa* are known as *Shiro-awa*, *Kuro-awa* and *Mochi-awa*; of *kibi* there are *Shiro-kibi*, *Uru-kibi* and *Mochi-kibi*.

Soy bean, sometimes called Japan pea, *Glycine hispida* (Moench) also known as *Soja hispida*: of this many varieties of different colour and size, etc., are met with, but as far as is known they differ but little in composition. They are know collectively as *Daidzu* or *Ō-mame*; a common white round variety is known as *Miso-mame* and *Shiro-mame*; other names of varieties are *Awo-mame*, *Kuro-mame*, *Ki-mame*, *Ichiya-mame*, *Kurakake-mame* and *Korinza*.

This bean approaches more nearly in its proximate chemical composition to animal food than any other vegetable known. It contains about one-fifth of its weight of fat and nearly two-fifths of nitrogenous matter. It is extensively cultivated in the north of China and also grows in the Himalayas. In China it is compressed for the sake of its oil, and the residual cake is used for food and also extensively as a manure. In Japan it is used in the preparation of *Shōyu*, *Tōfu*, *Miso* and also of *Yuba*, and in these various forms enters to a considerable extent into the food of the nation, to which it is a most valuable contribution, supplying as it does the alimentary principles—albuminoids and fat—in which the staple food, rice, is deficient: it also contains a much larger percentage of the necessary mineral matters than does rice. Of late years this bean has been grown experimentally in different parts of Germany, with success. The haulm and leaves furnish a valuable fodder, and a variety is cultivated specially for that purpose and known as *Kari-mame*.

The composition of a sample of the white round variety known as *Miso-mame* was found to be—

	35
Water	11.82
Ash	3.86
Fat	20.89
Albuminoids	37.75
Fibre	2.00
Starch etc.,	24.08
	100.00

The composition of Indian, Chinese and German specimens has been found to differ but little from the above; in them the fat varied from 15.8 to 21 per cent and the albuminoids from 30.6 to 39 per cent.

Some of the products from these beans have been examined with the following results:—

	36	37	38	39
	SHIRO-MISO FROM ŌSAKA.	AKA-MISO FROM ŌSAKA.	TO-FU.	KORI TO-FU.
Water	50.73	50.40	89.29	18.75
Ash†	6.58	12.50	.48	1.60
Sugar	17.54	.61	Fat 3.32	28.80
Nitrogenous matter	5.64	10.08	4.87	48.80
Fibre	12.93	8.25	....	....
Soluble carbohydrates	6.58	18.16	2.04	2.05
	100.00	100.00	100.00	100.00
†Common salt	5.40	11.00		
Dry matter soluble in water	35.88	34.71		

Miso is made by mixing the boiled beans with *Kōji* (rice ferment used in *sake* brewing) in various proportions, and with more or less salt, and keeping the mixture in tubs in a cool place for about a month.

It will be noticed that one variety contains much sugar, derived from the *Kōji*, and little salt, and the other much salt and little sugar.

Tōfu is made by pounding the soy beans after soaking in water, then straining through a sieve, and boiling in water. The solution is filtered through cotton cloth and the residue pressed; the strained liquor, containing vegetable casein or legumin, is precipitated by brine, *Nigari*, formed by the deliquescence of common salt. The precipitate pressed and cut into cakes is *tōfu*.

Kōri-dōfu is prepared from the above by freezing it and afterwards exposing to the sun, when, in the process of thawing, the greater quantity of the water is removed, leaving a horny spongy residue.

An example of *shōyu* or soy was found to have a specific gravity of 1.199 and to contain per litre—

	40	
Total solid residue	359.88	grms.
Ash	195.16	"
Sugar	31.08	"
Nitrogenous matters	41.00	"
Free acid, expressed as acetic acid	6.20	"

The ash is chiefly common salt, but contains a quantity of phosphates derived from the mineral matter of the beans and kept in solution by the acetic acid formed.

Shōyu is made from the soy bean, together with wheat, salt and water. The proportion of the materials varies considerably, as does the quality and price of the *shōyu* resulting. Usually, however, equal parts of wheat and beans are used. A small part of the wheat is mixed with *kōji* and allowed to ferment. The remainder is roasted and the beans are boiled. The beans and remainder of the wheat are mixed together with the fermenting wheat and placed in shallow wooden boxes and kept for some days at a fixed temperature, in a warm chamber with thick walls, until the whole mass is covered with fungus. During this process, part of the starch of the wheat is converted into dextrin and sugar, and lactic acid and acetic acid are formed. The fermenting mass is then mixed with salt lye, the proportion used being about 4 *to*[39] of salt to 1.2 *koku* of water to extract 1 *koku* of the fermented product. The mashings are removed to large vats and there kept for many months, usually twenty, and frequently for 3 or 5 years. The better qualities of *shōyu* are kept the longer times. It is found that the best soy is produced by mixing that kept for five years with that kept for three years. After it has been kept a sufficiently long time, it is strained through thick cotton bags and the residue pressed. Before filtering, honey is sometimes added in the proportion of 10 *kin* to 1 *koku* of *moromi* or crude soy, in order to give it a sweet taste. Occasionally a sweet *sake*, *ama-sake*, prepared by taking, 1 *koku* of *kōji* to 7 *to* of water and 1 *to* of steamed rice, mixing them together and steaming for two hours, is added instead of honey. The residue obtained on pressing *moromi* is usually again mixed with salt and water, and pressed; this yields an inferior *shōyu*. Sometimes water is added to this second residue and

[39] 10 *to*=1 *koku*.

it is again pressed. The residue first obtained is sometimes used as food and the last residue as manure.

The *Shōyu* after straining is allow to settle for two days in large tanks, then drawn off and filtered; before sale it is heated to incipient ebullition, otherwise it quickly goes bad.

The quantity of nitrogenous matter in solution in *shōyu* appears to increase with the length of time elapsing before filtering the *moromi*.

Another common bean is the *Adzuki* or *Shōdzu*, *Phaseolus radiatus*, of which there are several varieties, especially, besides the ordinary kind, a large variety *Dai-na-gon adzuki*, and a white kind, *Shiro-adzuki*. The latter powdered, under the name of *Arai-iko* is used for washing, and its use was more common formerly when soap was not so abundant as now.

Mean of three analyses of *adzuki*:—

	LARGE VARIETY 41	SMALL VARIETY. 42
Water	14.56	13.20
Ash	2.88	2.86
Fat	.61	.62
Albuminoids	18.17	18.66
Fibre	8.80	9.30
Starch, soluble cellulose, etc	54.98	55.36
	100.00	100.00

From this bean are prepared the sweetmeats known as *An* and *Yōkan;* the former made of *adzuki* and sugar and the latter of decorticated *adzuki* and sugar.

Some varieties of *P. radiatus* are cultivated, and, among leguminous plants, several species of *Dolichos*, common peas and beans, overlook peas and ground nuts, as will be seen in a list of plants used for food or producing food in this country, now in course of preparation for this society.

Of the giant radish of this country, the *dai-kon*, whose powerful odour usually meets us from a Japanese repast, two analyses have been made. It will be seen that in composition they closely resemble the giant turnips of western countries, and contain little more than five per cent of solid matter.

48. Dai-kon, 2½ feet long and weighing more than 8½ kilograms.

44. Dai-kon weighing about 2½ kilograms.

	43	44
Water	94.97	94.45
Ash	.61	.58
Nitrogenous matter	.57	.64
Fibre	.60	.60
Sugar	3.25	2.10
Pectose, etc.		1.63
	100.00	100.00

Names of varieties of *dai-kon* are *San-gatsu dai-kon*, *Natsu dai-kon*, *Ku-nichi dai-kon*, *Hosone dai-kon* and *Miyashiye dai-kon*, the last coming from the province of Owari.

Some of the principal sea-weeds used as food have been analysed.

Nori and *Asakusa nori* are the names specially given to *Porphyra vulgaris* (Agardh) which is very closely allied to and perhaps only a variety of *P. lanciniata* (Agardh.) the alga which supplies the principal part of that sold in England under the name of laver, in Ireland as sloke and in Scotland as slaak. This is, as is well known, cultivated in the shallow water of Tōkiyō Bay on branches of oak, *Quercus serratus*, and other trees, the crop being gathered in the winter months; in the summer it becomes too tough for use. The water at Asakusa has for nearly three centuries been too fresh for its cultivation in the river there, but the name is still retained.

45. *Asakusa nori*, *Porphyra vulgaris* (Agardh.) Best kind from Ōmori, near Tōkiyō. 100 grams cost 36 sen.

46. *Asakusa nori*, *Porphyra vulgaris* (Agardh.) Medium quality from Ōmori, near Tōkiyō. 100 grams cost 29 sen.

47. *Asakusa nori*, *Porphyra vulgaris*. (Agardh.) Common variety from Ōmori, near Tōkiyō. 100 grams cost 8 sen.

48. *Nori*, Purple colour, *Porphyra vulgaris*. (Agardh.) From Uwagōri, Iyo, Yehime ken. 100 grams cost 27 sen.

49. *Nori*, Purple colour, *Porphyra vulgaris*. (Agardh.) From Shikichi-gōri, Enshū, Shidzuoka ken. 100 grams cost 18 sen.

50. *Nori*, Green laver, probably *Phycoseris australis*, (Kutzing) From Ise. 100 grams cost 5 sen.

PERCENTAGE COMPOSITION.

	45	46	47	48	49	50
Water	14.40	12.60	19.40	12.98	12.91	15.61
Ash	9.45	6.80	11.90	8.68	8.64	16.73
Fibre	5.50	5.66	7.46	9.83	9.98	8.71
Nitrogenous substances	26.14	18.11	4.48	17.41	19.88	6.32
Non-nitrogenous do.	44.51	56.83	57.71	51.10	48.59	52.63
	100.00	100.00	100.00	100.00	100.00	100.00
Containing nitrogen	4.13	2.86	.66	2.75	3.14	1.33
The Ash contains—						
Silica	1.40	.60	7.80	6.40	6.65	1.96
Phosphoric acid	14.07	13.77	6.05	13.27	14.16	7.25
Potash	34.50	31.50	11.15	35.19	33.83	32.27

The green laver is inferior to the purple.

It will be noticed that the price is very nearly in the same order as the quantity of nitrogen, which decreases with the age of the plant.

Another common sea-weed, *Kobu*, is *Laminaria saccharina* (Lamouroux) or sweet tangle, or a closely allied species, *L. japonica* (Aresch.). This is closely allied to the common tangle *L. digitata* (Lamour), known also in different parts of the United Kingdom as sea girdles, red-ware and seawand. Tangle is the species which supplies the largest amount of kelp. The stem is used for knive handles and the plant often as a hygrometer in England. Both *L. saccharina* and *L. digitata* contain a peculiar kind of sugar apparently identical with that occurring in manna and in some other plants, and called mannite. Sweet tangle contains 12 to 15 per cent of this sugar.

51. *Kobu.* From Yezo.

52. *Kobu.* From Toshiki-gōri, Wakasa, Shiga ken.

PERCENTAGE COMPOSITION.

	51	52
Water	26.80	24.82
Ash	22.50	18.58
Fibre	9.38	4.97
Nitrogenous substances	7.79	6.02
Non-nitrogenous substances	33.58	45.66
	100.00	100.00

Containing nitrogen	1.28	.95
The Ash contains—		
Silica	3.94	trace.
Phosphoric acid	4.48	2.96
Potash	27.00	31.77

Kobu is also used as an emblem of a present.

Another species is *Wakame*, *Alaria pinnatifida* (Harvey); its British congener *A. esculenta* (Greville) is known in various parts of Scotland as bladder-locks or badderlocks (Balders-locks), Henware, Honey ware and Murlins. It is used as food on the coast of Scotland and Ireland and in Denmark and Iceland, and is one of the best of the esculent Algæ. *Arame* or *Kokusai* is perhaps *Capea elongata; Awo-nori* or *Ohashi-nori* is *Enteromorpha compressa* (Grev.), a species growing in fresh and salt water especially on tidal rocks.

Hijiki, a species of *Cystoseira* (?) is found on all the coasts; that from Ise is most valued. Besides these many other species are used to a less extent, and *Tokoroten-gusa*, sometimes called Agar Agar, *Gelidium corneum* (Lam.), is largely employed in the manufacture of *Kanten* or *Tokoroten*, vegetable isinglass.

53. *Wakame*, 100 grams cost 6.5 sen.

54. *Arame*, from Shinano. 100 grams cost 1.2 sen.

55. *Awo-nori*, from Ō-hashi, Tōkiyō. 100 grams cost 7.5 sen.

56. *Hijiki*, from Iwachi-mura, Kamogōri, Idzu. 100 grams cost 2.5 sen.

PERCENTAGE COMPOSITION.

	53	54	55	56
Water	15.11	13.17	13.60	16.40
Ash	33.82	24.74	10.42	16.20
Fibre	2.16	7.40	10.58	17.06
Nitrogenous substances	8.29	8.99	12.41	8.42
Non-nitrogenous substances	40.62	45.09	52.99	41.92
	100.00	100.00	100.00	100.00
Containing nitrogen	1.32	1.42	1.93	1.33
The Ash contains—				
Silica	trace	6.97	2.20	1.91
Phosphoric acid	2.61	11.22	2.37	2.20
Potash	21.00	27.98	....	32.55

The cultivation of sea-weed is carried on extensively in some places, and it is said that a great number of varieties arise from the different trees which are used as the feeding ground of the plants, which include different varieties of oak, other deciduous trees and bamboos. An account from an observer of the cultivation would be very interesting.

The so-called Irish Moss or Carrageen, *Chondrus crispus*, (Lyngbye.) is perhaps the most extensively used for dietetic purposes of the sea-weeds in Europe at the present time; a closely allied species, *Chondrus punctatus* (Suringar) occurs in the Japan Sea.

There is some confusion in the books about the names and species of the two principal sea-weeds. Thunberg and Kæmpfer give to *Kombu* the name *Fucus saccharinus*, Fucus being at that time the generic appellation of nearly all Algæ. Thunberg mentions that it is sometimes called *Komb* or *Kobu* or even *Kosi*. In Golownin's narrative of his captivity in Japan (1811-1813) he mentions the gathering of sea-weed of a kind called by the Russians sea-cabbage and by the Japanese *Kambon*. This is now called in Yezo *Kombu*, which name is on this island generally pronounced *Kobu*. The English translator of Golownin refers this sea-weed to the kind known as dhulish or dulse in the North of Scotland and Ireland and when boiled as *sloke*, *sloak* or *slaak*, but this latter is *Porphyra lanciniata*, nearly allied to the Japanese *Nori*. In some books *Fucus saccharinus* and *Laminaria saccharina* are spoken of as different substances, but the former is merely the old name. An allied species *L. potatorum* is used by the natives of Australia and in New Zealand and Van Diemen's as food and for making instruments, and still another species is used on the W. coast of South America. The dulse of the Scotch, and the dylisk, dillish, dullisgor, duileisg (leaf of the water) of the Highlands is *Rhodymenia palmata* (Grev.) which also contains mannite and is sudorific. It is largely used in some of the maritime countries of Europe from Iceland to Greece. In Kamschatka a spirituous liquor is made from it. Cattle are very fond of it. Before tobacco was so easily obtained the Highlanders and Irish were in the habit of chewing it. It is parasitical on *Fuci* and *Laminariæ*. The dulse of the South West of England is another species, *Iridæa edulis*. (Bory).

Closely allied to *R. palmata* is a Japanese alga *R. textorii* (Suringar.) *Plocaria candida* is the Agar Agar of the Malays and imported to England as Ceylon moss, and from this species the edible bird's nests so esteemed in China are principally constructed. *Gelideum corneum* (Lamour.) is often sold as Agar Agar, it is the *algue de java* known in China as Niu-mau or ox-hair vegetable. Its gelatining principle has been called gelose. *Gracilaria lichenoides* is also known as Agar Agar.

Funori, Gloeopeltis intricata, (Suringar) is largely used for making size, which has numerous applications, and *Tsunomata, Gymnogongrus pinnulatus* (Harvey) or *G. japonicus* (Sur.) is used for the same purpose.

A few alcoholic liquids have been examined with the following results:—

57. *Sake*, Nihon hanazakari from Setshiū.
58. *Sake*, Hanazakari from Uyosaki in Sei-shū.
59. *Sake*, Iro-musume from Nishi-no-miya in Setshiū.
60. *Mirin*.
61. *Hō-mei-shū*.

	57	58	59	60	61
Specific gravity	.989	.9881	.9904	1.128	1.1204
Alcohol by weight, per cent	13.77	13.85	14.50	12.77	15.50
Total solid residue, grams per litre	26.048	23.310	25.032	429.5	392.80
Ash ditto	.549	.51	.448	400.	360.
Sugar ditto	5.35	4.10	5.50	.97	.152
Free acid, as acetic acid .. ditto	2.025	2.645	2.50	trace	.81

The two latter, which are sweet liqueurs, are made from *kōji*, rice and *shōchiu*, the sugar being derived by fermentation from the starch of the rice.

Shōchiu is prepared by the distillation of *saké* residues with steam. According to the rate of distillation and condensation employed, which can be easily varied, the alcohol varies in strength. It is divided into seven classes from *Is-sho-dori* to *shichi-sho-dori*, the former being the strongest.

62. *Shochiu*,—Is-sho-dori.
63. *Shochiu*,—San-sho-dori.
64. *Shochiu*,—Go-sho-dori.
65. *Awamori*,—Alcohol from Okinawa-ken (Riu-Kiu).

	62	63	64	65
Specific gravity	.9065	.941	.964	.9367
Alcohol of volume	62.7	46.4	31.6	49.6
Alcohol of weight	54.9	39.0	26.0	41.6
Total solid residue, per mille	....	....	....	.42
Ash ditto	....	....	....	.04
Free acid, as acetic acid ditto	trace	....	....	.25

The strongest, No. 62, is equal in strength of spirit to 10.7 over proof by the English excise standard.

Numerous experiments were made last summer with salicylic acid as an antiseptic agent for *sake*, and it was found that used in the ratio of 1: 10,000 it preserved *sake* in imperfectly closed vessels for about a month, and when used in the ratio of 1: 5,000 it preserved the *sake* through the whole of the summer in perfect condition even under very trying circumstances.

Waters from different places have been partially analysed, for various purposes, and the following results are perhaps worth noting, as showing the great softness of some spring and river waters and the large amount of silica they contain in solution relatively to the total solid residue. Some of the analyses also indicate the large amount of contamination taking place in wells in the towns.

66. Water from a well on the Tokko Farm, Shimosa.
67. Water from a well on the Komaba Farm, Tōkiyō.
68. Water from a well on the Komaba Farm, Tōkiyō.
69. Water from Fukushima ken.
70. Water from a well in Banchō, Tōkiyō, No. 9, San ban chō.
71. Water from a well in do. do. No. 9, San ban chō.
72. Water from a well in do. do. No. 8, San ban chō.
73. Water from a spring in Naka-no-take about 4 *ri* from Tomioka, Gumma ken.
74. Water from the stream from 73, on entering Tomioka.
75. Water from a well of a house in Tomioka.
76. Water from the Kita gawa, a few *chō* from Tomioka.
77. Water from a spring at Yuki.
78. Water from a stream at Yuki, supplying the Tamagawa.
79. Water from a spring at Shirako, Musashi.

Parts per 100,000

	66	67	68	69	70	71	72
Total solid residue	7.07	4.70	4.74	3.60	17.00	39.87	40.36
Loss on ignition	.29	.40	.40	....	1.10	1.30	1.80
Sodium chloride	1.43	1.15	.63	trace	4.09	10.23	11.10

Parts per 100,000

	73	74	75	76	77	78	79
Total solid residue	8.75	10.0	27.7	9.25	4.2	6.8	5.7
Loss on ignition	1.25	1.6	4.0	1.3	.8	1.0	1.05
Silica	2.05	3.8	2.2	2.1	.6	1.2	1.5
Sodium chloride	.75	.92	8.63	.75	.4	.3	1.36

The Tomioka waters and some others have a faint but very distinct alkaline reaction, which has sometimes been found to amount to as much as the equivalent of three parts of sodium carbonate per 100,000, though usually it is much less. Messrs. Gabba and Textor of Milan have, from a series of experiments and observations on the water and silk of Italian filatures, especially in Lombardy, come to the conclusion that soft water is, speaking generally, not an advantage in silk winding, as it removes to much of the "gum" or "varnish" of the raw silk. This question seems worthy the attention of those practically engaged in the silk industry of this country, considering the softness and in some cases the alkalinity of the spring waters.

It may be of interest to some of the members of this society to mention that there are near here establishments for the hatching and rearing of fish under the charge of Mr. Akekiyo Sekisawa, chief of the Aquatic Production's Section, and principal of the Agricultural College at Komaba. One of these is at Shirako, Musashi, Saitama ken, on the Kawagoye-kaidō, about five *ri* from Tōkiyō, and another at Yūki, Musashi, about 16 *ri* from Tōkiyō and one and a half beyond Ōme, and situated on the S. bank of the Tamagawa. In these establishments the two kinds of Japanese salmon *Salmo Perryi* (Brevoort), *Shake* or *sake*, and *Salmo orientalis* (Pallas), *Masu* are principally reared: each station has a capacity equal to raising about 80,000 fish. The great difficulty is in the temperature of the water which, es-

pecially at Shirako, rises to too high a point; the supply also is limited. Besides these there are other establishments for fish culture lately established, viz., one in Shiga ken, one at Mishima in Shidzuoka, two in Nagano and one at Kanazawa in Ishikawa ken. The largest is that in Shiga ken, about 2 *ri* from Maibarà on Lake Biwa, where there is an abundant supply of water and the Lake trout are hatched, the eggs being brought from Lake Biwa.

Owing to the difficulty of obtaining a supply of meat for feeding the young fish, various experiments with other substances as food have been made. As a result a mixture of silk worm chrysalis and wheat flour, in equal parts, has been found to answer well. The chrysalides are ground, mixed with the flour, boiled for a quarter of an hour, and, after cooling, the mixture passed though a fine wire sieve. The proximate composition of the chrysalides and of the mixture before preparation were found to be as follows:

80. Chrysalides of the common silk worm. *Bombyx mori.*
81. Chrysalides of the mountain silk worm. *Bombyx Yama-mai.*
82. Mixture of flour and pupæ.

	80	81	82
Water	10.99	9.24	12.23
Ash	3.24	2.54	3.30
Oil	14.88	28.57	7.16
Nitrogenous matter	47.28	49.75	25.25
The ash containing—			
Silica	2.12	.83	
Lime	4.19	1.29	
Phosphoric acid	38.50	34.30	
Potash	17.87	17.88	

The extremely oily nature of these is noticeable, especially of the *Yama-mai* chrysalis. I believe that oil is in some places extracted from these chrysalides.

Another substance used for the food of fish and also to some extent for human food is the snail *Paludina malleata*, and other species of this genus, *Tanishi*, common in the paddy-fields in the spring. An analysis of this, freed from its shell and operculum, in the state in which it is used for human food, gave the following results:—

	83
Water	79.6
Ash	4.7
Oil and waxy matter	2.0
Nitrogenous substances	8.1

The ash contained—

Lime	49.62
Magnesia	3.25
Potash	2.96
Soda	3.63
Phosphoric acid	5.76

The dried substance itself contained calcium carbonate forming a covering to the eggs and young in the bodies of the mature snails.

To Mr. Sekisawa I am indebted for the following very interesting information concerning a spawning place of *Salmo Perryi* on the north coast. This place is in the Miomote-gawa, which rises in Miomote yama in the north-east of the province of Echigo, and flows westward through Iwafune-gōri and through the town of Murakami to the sea, the total length being about 10 *ri*. In this river *sake* (salmon) are most abundant, though *masu* (sea trout) and other fish are found; it supplies Echigo and the neighbouring provinces, and next to the Hokkaidō affords the largest supply in the empire. Murakami was formerly the castle-town of the Daimiō Naitō to whom the fishery belonged; it is now in the hands of a company formed of the retainers of the ex-daimiō, and some idea of its importance may be formed from the fact that, after paying a goverment tax of five thousand yen and working expenses, including the repair of river banks, etc., the het profits are sufficient to support 750 families. Close to Murakami the river divides itself into three courses, one of which affords a natural spawning place and is hence called Tane-gawa. This Tanegawa is about 1200 yards long by 50 broad, and at spawning time the fish come up to it in immense shoals, nearly all the salmon entering the river coming to this place rather than to the other courses. A fence is put across the upper part of the branch and another, with an opening, at the lower part. When a good supply of fish are thus inclosed the opening in the lower fence is closed and the fish left for about a week till they have deposited their eggs, when they are taken out with nets. An-

other lot is then let in and confined for some days and this is repeated several times during October and November. At the beginning of May the young fish go down the river to the sea. This plan is said to have been originated by one Aodo about 200 years ago, and to have been followed exactly ever since. During the time of spawning and also when the fish are going down the river, very strict watch is kept day and night, so that they be not disturbed by poachers or otherwise.

For much valuable assistance in the analytical work of this paper, I am indebted to my assistants Messrs, M. Meyazato, J. Watanabe, M. Takeo and R. Fukuda, and also to them and other Japanese friends for information relating to the names of foods.

Since the above has been in type the following analyses of Yezo soils and manures have been published in the Third Annual Report of the Sapporo Agricultural College.

Analyses of four soils by Mr. Miyasaki.

1. Fine sandy loam from a small level tract at the head waters of the Ashibets (river) about 2200 feet above sea level.

2. From Nemuro.

3. Fine alluvium from a level tract at the mouth of the Poronai river, in the Ikushibets valley.

4. Alluvium of the same formation as the preceding, from Urashinai on the Ishkari river.

PERCENTAGE COMPOSITION OF THE SOIL DRIED AT 100°C.

		1	2	3	4
Organic matter, etc		12.968	22.105	10.606	8.461
Insoluble silicates		*73.390	68.298	77.888	78.876
Ferric oxide	Soluble in hydrochloric acid.	6.377	3.436	4.601	6.796
Alumina		3.342	2.624	4.538	3.710
Lime		.080	.615	.890	.354
Magnesia		.227	2.351	.777	.809
Potash		.181	.008	.135	.899
Soda		.293	.138	.238	.085
Phosphorus pentoxide		....	traces	....	....
Sulphur trioxide		traces	.005	.017	.006
Chlorine		.050	....	.003	.006
		99.908	99.580	99.693	100.02
Water in air dried soil		25.333	22.403	99.693	32.206

*?76.390

These soils show a great family resemblance to the others before mentioned; the amount of lime is small and in most cases exceeded by that of magnesia; the potash, except in one instance, is very low; and phosphoric acid is mentioned as present in appreciable traces in one instance only. Without doubt a more careful examination for this latter ingredient would reveal its presence in distinctly estimable quantities, but we must accept the statement as evidence that its amount is small. The moisture retained by the air dried soil is considerable in quantity, as is the case with the alluvial soils of this island.

In the same report a soil of the Sapporo farm is stated to contain, in the dry state, about 12 per cent of organic matter, about .3 per cent of potash and very little lime.

Analyses, by K. Ono, of two specimens of Hokkaido fish manure.

5. The refuse after extraction of oil from herrings, *nishin*, made at Otaru and very coarse.

6. The refuse from small fish, chiefly sardines, *iwashi*, made at Mombets on the East coast.

	5	6
Water	12.28	12.17
Total Nitrogen	9.18	10.10
Equal to Ammonia	11.08	12.26
Totals phosphorus pentoxide	3.07	3.37
Equal to tricalcic phosphate	6.70	7.38

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DISCUSSION.

Professor Atkinson said he wished to express his indebtedness to the author of the paper for the valuable assistance which the record in the paper of so many analyses would be to him in the work he was at present carrying out. He wished to point out, however, that Professor Kinch appeared to have adopted a meaning of the term "fertile" which was not sanctioned by the dictionaries. Webster's

definition is, that a soil is "fertile" which produces abundantly,—not that it yields products which can only be obtained by the system of "high farming" now in use. The term fertile is relative, and thus it would be quite proper to call a land fertile which produces a luxuriant crop of wild flowers compared with other soils which do not do so, because the probability is that, if it were sown with seed, it would bear abundantly. Too little importance seemed, to the speaker, to be given to the condition of growth other than the nature of the soluble constituents of the soil. Such substances, doubtless, fulfilled the purposes of food to the plant, but just as animals, though fed on the same diet, would turn out differently, so it was reasonable to suppose that there might be "lean kine" among agricultural products. The observations made at Mr. Lawes' farm at Rothamstead, during the last thirty-six years, and communicated by Dr. Gilbert to the British Association at its last meeting, shewed how little is really yet known even about the absorption of material from the soil, for it had been noticed that, although cereals contain comparatively little nitrogen and much posphoric acid, yet the application of nitrogenous manures to such crops was attended with very beneficial results, and that, although bean crops *(leguminosæ)* contain a very large amount of nitrogen, the manures best suited to them were not nitrogenous, but potash manures. The speaker then referred to the influence of other conditions affecting the growth of plants, such as light and heat, stated and that, from observations made by Schübeler of Christiania, the almost unbroken sunlight of the short Scandinavian summer appeared to have the effect of intensifying both the colour and the aroma or flavour of fruits and vegetables, whilst the proportion of sugar formed was smaller. It appears that the increase of aroma and colour was the effect of light, whilst sweetness was mainly dependent upon warmth. Siemens had recently suggested the employment of the electric light, and had proved that by its use the development of the plant might be much increased.

The speaker further made some remarks upon *shōyu* and the alcoholic drinks of the Japanese. He said that Mr. Isono, a graduate of the University of Tōkiyō, had made analyses of the *shōyu moromi* at various periods, and as it might be of some interest to have the record in the Transactions of the Society, he begged to be allowed to communicate the analyses. It was interesting to observe the disappearance of the glucose, and the gradual increase of the soluble nitrogen from the first sample to the last. The greatest change took place between the third and the tenth months, but, after the removal of the greater part of the glucose and dextrin, converted into alcohol and lost by evaporation, very little alteration occurred, except in the colour of the liquid, which became darker. Professor Kinch had mentioned the fact that, by the use of salicylic acid, the tendency of *sake* during the summer months to turn bad could be counteracted. This alteration appeared to be due to the presence of butyric acid ferments, and, from some experiments now being carried on, the process of heating the liquids, known as Pasteur's process, was also successful in preserving *sake*. It was a matter of great

importance to possess a means of keeping *sake* over the summer, as the want of this at present necessitated the consumption of the new wine within the same year, and gave no opportunity for "ageing," by which the aroma was developed. The taste of *sake* was probably due to a solution by the alcohol of the bitter principles contained in the dead yeast cells, partly also from the solution of the resin contained in the wood of the cask, or from shavings purposely introduced. The rapid spoiling of *sake* during the hot months of the year also prevented the export of any large quantity, and the adoption of any process which would preserve the liquor would be of great economical advantage to the country.

ANALYSES OF THE *SHŌYU* MASH AT VARIOUS STAGES OF ITS PREPARATION.

By T. Isono.

[(1) represents the composition of 8 months' *shōyu*, (2) 10 months', and (3) 20 months'.]

	(1)		(2)		(3)		(4)
Sp. gr.	1.21		1.19		1.20		Sp. gr.=1.199
Shōyu (before washing)	39.31%	43.86	37.34%	61.30	37.51%	60.19	
Increase by washing	4.55 "		23.96 "		22.68 "		
Residue	55.14 "		38.70 "		39.81 "		

Composition of filtrate:—

	(1)	(2)	(3)	(4)	in a liter.
Total solid	46.27%	34.66%	36.03%	35.17%	or 421.706 grms.
Ash	26.94 "	21.21 "	22.75 "	14.66 "	" 175,864 "
Cholorine	14.42 "	10.72 "	11.64 "	7.84 "	" 94.001 "
Glucose	12.09 "	0.67 "	0.42 "	4.44 "	" 53.226 "
Dextrin	4.14 "	3.83 "	3.34 "	4.56 "	" 54.710 "
Alcohol	4.61 "	.85 "	.92 "	.13 "	" 1.650 "
Volatile acid (acetic)	.11 "	.20 "	.22 "	.16 "	" 1.920 "
Fixed acid (SO_4)	.21 "	.67 "	.82 "	1.08 "	" 13.034 "
Nitrogen	0.30 "	1.33 "	1.44 "	1.43 "	" 17.208 "

The composition of the residue was as follows:—

	(1)	(2)	(3)
Starch	24.77%	15.70%	14.01%
Ash	29.51 "	25.52 "	26.69 "
Nitrogen	6.78 "	5.25 "	4.88 "

(4) is a specimen of *shōyu* called *kikkoman*, bought in Tōkiyō, and costs 20 *sen* for 1 *shō*. The first three samples were taken from the fermenting vats in the *shōyu* works at Ōsaka.

ON THE SYSTEMATIC POSITION OF THE ITACHI, OR MUSTELA ITATSI TEMMINCK AND SCHLEGEL.

By Prof. D. Brauns.

[*Read June 8, 1880.*]

A monograph treating a single species of Japanese animals might appear to be of little value, but this species turning out to be remarkable not only for its nature and for the place it is to take in the system, but also for its geographical distribution, I shall scarcely need to apologize for introducing this monograph into the papers and meetings of the Asiatic Society of Japan.

The Itachi occurring frequently in the neighbourhood of Tôkiyô and coming even into the precincts and upon the roofs of the houses of the capital as well as of the smaller towns and villages in its vicinity, it struck me from the very beginning of my abode in Japan that it is very much resembling the Mink and Noerz, Mustela Lutreola L., called sometimes the Polecat of the northern seas, or the small otter. I was surprised indeed at not finding any comparison of the 'Itatsi' with the European Noerz or Mink in the highly valuable book on the Japanese mammals by Temminck and Schlegel contained in the "Fauna Japonica" of von Siebold (1850), whilst the authors had not omitted to compare the Japanese animal, to which they gave a new specific name, with the Polecat, a well-known small carnivorous animal belonging to the same genus, though not to the same subdivision of this genus.

As for the *generic* denomination, there can be no doubt about the Itachi belonging to the same true genus as the Polecats, Ferrets, Stoats, Weasels and Minks, and not to the Martens and Sables, with which the

UofM

FIG. 4

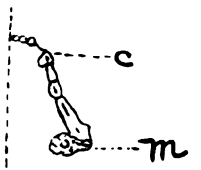

FIG. 3

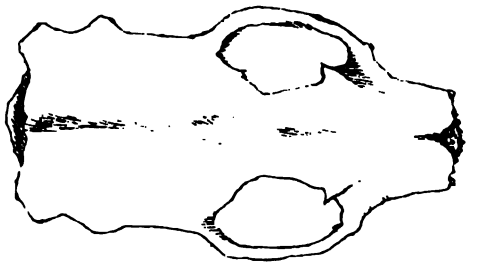

FIG. 2

FIG. 5

FIG. 1

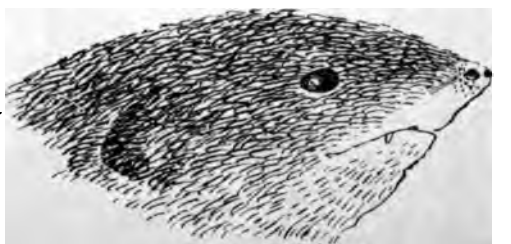

FIG. 6

forementioned species were formerly allied to the genus Mustela. It may be briefly mentioned that the true Martens (together with the Sables and with the Japanese *Ten*) are indeed to be separated from the Polecats, Stoats, etc., as they have 38 teeth instead of the 34 teeth which are found in the latter. Now the number of the teeth being always thought to be important enough for separating the mammals generically, we cannot but accept a denomination as far as I know, first aimed at by the Russian and German authors Count Keyserling and Blasius—which separates the Polecats, Stoats, etc., as a genus from the true Martens or Mustela, now sometimes called Martes. I shall therefore call the former *Foetorius*, which *genus* is—as stated above—characterized by having only 34 teeth, viz., 6 upper and 6 under incisors, 4 canine teeth totally, 12 praemolars or 3 in every branch of the jaws, of which the last in the upper jaw are carnassial teeth, and 1 upper and 2 lower true molars on every side of each jaw, the first of the latter ones being the under carnassial tooth. The *Mustelae* or Martes have one praemolar more in every branch of the jaws, and in consequence a somewhat longer head, whilst in every other respect they are not differing from the Foetorius.

The Itachi belongs undoubtedly to Foetorius; and Temminck and Schlegel, though they did not adopt that generic name, were apparently of the same opinion. They not only compared the Itachi chiefly with the Polecat and not with the Martens, but also called it in the French text "Putois itatsi" or Itatsi-Polecat. Besides we see from the plate on which the skull of this animal is represented, together with that of the Japanese *Ten* or Mustela melampus, that its upper jaw has decidedly not more than 2 praemolars before the carnassial (or 3 altogether) on each side, whilst the *Ten*, being a true Mustela, exhibits one praemolar tooth more. I have thought it necessary, however, to complete the figure of Siebold's Fauna by giving an outline of the side-view of the skull with open jaws (fig. 1), which shows also the number of the molar teeth of the lower jaw, and besides (fig. 2) I represent the same skull seen from above, as this view shows likewise some important characters which will be discussed below.

Both figures show, moreover, that the skull of the Itachi is a little longer than it has been represented in Siebold's work. I have carefully

measured several full-grown Itachi skulls in different collections, a found it always between 55 and 60 millimeters from the anterior part the nasal bones to the end of the occiput. Siebold's figure gives on 52 millimeters, and the difference is the more striking as it is only caus by a comparative shortness of the *posterior* part of the skull. I do n hesitate to assume a mistake of the artist engaged to draw the Itac skull for Siebold's book.

As there can be no doubt at all about the Itachi belonging to th genus Foetorius, it may be farther investigated whether it belongs to th first, second or third subdivision of this genus, as they have been point out by the same authors who established the genus itself.

The first subdivision or tribe contains the Polecat, or Foetoriu Putorius (Mustela Putorius L.), together with some other nearly allie species, f. i. Foetorius sarmatius and F. Furo, the Ferret. This trib which may be called the Polecat tribe, or the subgenus Putorius, i characterized by its belly and throat being very dark, much dark than the upper part of the skin, except of course in the Ferrets, whic are true albinos and cannot exhibit any dark colors and colored mark The hair is very long, the fore feet are provided with 10 naked spo under the toes, the hind feet with 9. The frontal bone has its narrowe part within the posterior half of the skull. Of all these characte nothing is to be seen in the Itachi.

The second subdivision contains the Stoats and Weasels, Foetoriu Erminea and F. vulgaris and their nearest allies, and might therefore b called the Stoat or Weasel-tribe, or the subgenus Foetorius prope It has the belly and throat white, the end of the tail black, even if the re of the hair, as it often does, becomes white in winter. The hair is muc shorter than in the Polecats, but the feet have the same number of nake spots. The frontal bone has its narrowest part decidedly within th anterior half of the skull, not very much behind the zygomatic processu of the upper orbital part of the frontal bone. The Itachi does not exhib any of these characters either.

The third subdivision contains the Mink and the Noerz or Nork c the Germans, which both together have been originally called Mustel Lutreola L., whilst some authors have since given another name to th Canadian Mink (Foetorius Vison Brisson). This tribe might be calle

the Lutreola-tribe or subgenus Lutreola. It does not exhibit any striking difference between the upper and the under part of the body, the former being only a little darker and of the same brownish or rusty hue as the latter. The feet are a little darker than the rest of the legs and the trunk. The hair is shorter than in the Polecats and not essentially longer than in the second subdivision. The soles of the feet are differing from those of the two other tribes, as every toe has but one naked spot, and behind these spots there is one larger callus of a subcordiform or irregular and rounded triangular shape. The narrowest part of the frontal bone is situated very little before the middle of the length of the skull, its distance from the zygomatic processus of the upper orbital margin being at least equal to that of the same processus from the anterior orbital margin. In all these respects, the Itachi belongs to this tribe. Thus, the upper view of the frontal bone (fig. 2) shows the intermediate outline between those of the first and second subdivision, by which the Lutreola-tribe is characterized; the feet, whose inferior side is given by fig. 4 (right fore foot) and fig. 5 (right hind foot), have the same form and number of naked spots, and besides the same extent of the skin between the toes of the hind feet, which, however, is not essentially differing and nearly as large in the other species of Foetorius.

More important than all these characters are doubtlessly some peculiarities of the teeth, which are also perfectly alike in the Itachi and Noerz.

The second incisor tooth of the lower jaw on each side has its edge exactly in the same line with that of the inner and outer one, and only the lower part of the tooth is placed behind those of the other teeth. In the other two subdivisions (Polecats and Stoats) not only the base but also the edge of the second incisor tooth is placed behind the other incisors.

In the Polecats, the first and the second praemolars of the upper jaw form an angle with one another, of which nothing is to be seen either in the Noerz or in the Itachi (which, however, in this respect do not differ very much from the Stoats).

Lastly, the tuberculated (true molar) tooth behind the carnassial of the upper jaw has a form quite typical for the third group, its internal part being flattened and dilated and at the same time rather projecting

to the anterior side, so that the anterior outline of this tooth is concave, and the interior and anterior angle extends much farther in that direction than the exterior anterior angle of the same tooth or the posterior face of the carnassial. As this character is said to be most essential for the Foetorius Lutreola, and seems evidently to be an adaptation to its mode of feeding, I give (fig. 8) the row of teeth of the left side of the upper jaw seen from below, *c* being the canine and *m* the true molar (tuberculated or post-carnassial) tooth.

There being indeed no doubt left about the Itachi belonging not only to the genus Foetorius but also to that subdivision of it which contains the Lutreolas or the Noerz and Mink-tribe, we may make a further inquiry whether it differs at all from the other species of this subdivision. In this respect we meet with one difficulty, as we have seen that some authors divide the European Noerz and the Canadian Mink specifically and give even the (above-mentioned) new name of F. Vison to the Mink, leaving the old Linnean name to the European Noerz, whilst many other zoologists unite both forms to one species and separate the Mink only as a variety.

The differences which are said to exist between the European and American Lutreolas are in fact very slight. They consist in the length of the tail and the size of the white spot on the lips, which in itself is important but varies very much in its details. The difference of the length of the tail would be perhaps worth noticing, if those statements could be relied upon which give the maximum relative length of the tail (nearly one-half of the other part of the body), and if the additional length of the tail was not caused by its being measured with the hairs at its end (which is not the case in the measures given below). As it is, we may with much more safety rely upon those statements which do not exhibit any striking difference of the proportional length of the tail. The white spot which is said to exist only on the under lip of the Mink, is also sometimes to be seen on the upper lip according to other authors. I must confess therefore that I am rather inclined to believe that the American and European Lutreola belong to one species. However, I shall leave the question as far as it concerns the American animal, the Mink, and confine myself to give evidence of the Itachi being identical with the European Noerz and of our being obliged to unite

these two animals to one species. Indeed there is no difference neither in the proportions of the body, head, tail and limbs, nor even in the colored spots and marks down to the most minute details, and in vain we may look out for any such characters as are used by the zoologists for dividing and determining closely allied species.

The color of the Noerz is a reddish brown, moderately dark. The short woolly hair is more grayish. Those colors are not essentially altered in the different seasons. The Itachi has the same tinge, only a little lighter in the average, especially under the chin and on the anterior part of the breast. But the lighter hue of these parts is always slowly passing into somewhat darker shades, and is always sufficiently dark to show most distinctly the white spots which are peculiar to the species.

These spots, perfectly alike in the European and Japanese specimens, consist chiefly in the white spots on both lips, and besides in a smal, spot between mouth and shoulders. The first is differently shaped, but always present, and in the Japanese as well as in the European specimens I have never seen nor heard mentioned any case in which it was not to be seen on both lips. Generally it is broader on the upper, but longer and farther extending to the posterior or outward part of the mouth on the under lip. Though fig. 1 of the 7th plate of Siebold's Fauna Japonica (Mammalia) gives a very good idea of it, I thought it advisable to add a drawing of it in natural size (fig. 6). The white color of the lips is the more striking, as on its upper margin it is bordered by rather dark brown hair, which, however, is not sharply limited, but is gradually and quite insensibly shaded off into the lighter hue of the other parts of the skin. The nostrils are very often (as is seen in fig. 6), but not always, bordered by white. As Temminck and Schlegel state, this white color of the lips does not disappear in any season nor in any stage of development. The second spot also quite constantly appears as well in the Itachi as in the Noerz. For the latter it is mentioned in every correct and detailed description, and though it is but small it is estimated to belong to the specific characters. Now I never failed to observe it in the Itachi, and even where the color of the throat was very pale, I always saw the white spot, mostly at a distance of about 80 millimeters from the mouth (in the median line), its diameter being about 10 millimeters. It is not always round but sometimes very irregular,

often triangular with rounded edges. I am obliged to lay some stress on this seemingly unimportant character, because it is not mentioned by Temminck and Schlegel, and therefore erroneously might be believed to want in the Itachi, thus furnishing a difference between it and the Noerz. The darker color of the feet is scarcely to be mentioned here, as it is not sharply limited. Yet it is also common to Noerz and Itachi.

As for the size and the proportions of the different parts, the identity of all the characters of Noerz and Itachi is indeed surprising. When we leave aside all the extraordinarily developed specimens on one side and the smaller, non-adult animals on the other, we have in the average the following dimensions, which I have partly taken from most conscientious European authors (as for instance the above mentioned Professor Blasius), and partly measured myself as accurately as possible on well selected specimens of the Itachi. In order to make the agreement obvious, I give (in the following table) all the dimensions in millimeters.

DIMENSIONS.	OF THE NOERZ.	OF THE ITACHI.
Total length	515—540	520—530
Length without tail	380	375—380
Length of tail	150	145—150
Length of head (of living animal)	72	70—72
Distance of centre of eye from point of muzzle	22	22
Distance of base of ear from do.	43	43
Humerus	34	36
Ulna	42	42
Fore foot, total	45	44
Femur	42	42
Tibia	49	49
Hind foot, total	56	56

It is to be added, indeed, that a few other measurings give a little different result. But those differences are existing between specimens of the same localities. Mr. Martens (in the zoological part of the description of the results of the Prussian Asiatic Expedition) gives 620 millimeters as maximum length of the Itachi, and though from the length which he gives for the tail it is clearly to be seen that he includes the hairy end of the tail, which is not included in my list, there remains a surplus of about 10 per cent of the total length as well as of that of the

tail. This surplus is somewhat large but not quite exceptional, even in mammals, and, as I said, it is given by Mr. Martens as a maximum. At all events it is shown by the statements of Temminck and Schlegel (which are perfectly agreeing with my measurings) and by these measurings themselves that the Itachi has usually and normally exactly the same size and the same proportions as the Noerz-specimens of eastern Germany, Poland and Russia.

Thus it is shown that in every respect there is the closest resemblance, nay, the strictest identity of the European and Japanese animals in question, and there can be no doubt about the fact that they belong to one and the same zoological species. The specific name of Temminck and Schlegel is therefore to be annihilated or placed among the synonyms, and the Japanese Itachi must have the old Linnean specific name, together with the new generic name, and must be called Foetorius Lutreola L., just as well as the Noerz.

Perhaps some people might be of opinion that the Japanese specimens, as they have a somewhat paler hue and especially a pale color of the throat, and as the thickness and quality of the fur are differing from those of the Noerz, belong to a distinct variety. But even this seems to be rather doubtful, as there are numerous Noerz specimens with lighter and Itachi specimens with darker colors, and as the throat is also sometimes a little paler in the former and not much paler than the other parts of the skin in many specimens of the Itachi. We must admit therefore an insensible passage and a total want of a distinct limit between both forms, which of course are still less to be separated by the differences of the fur. For great as the difference of the value and price of Noerz and Itachi skins may be, the zoologist will never be able to admit any essential divergencies. The color and length of the flix is the same, the maximum length of the single hairs is the same (20 millimeters) for the Japanese as well as for the European Lutreolas. The difference in the fur is not greater than in any species which is living in lands of different climates, the inhabitants of warmer districts furnishing in such instances always inferior skins.

It remains to be remarked that the mode of living and feeding, the voice and diet are also exactly the same both in the European and Japanese Lutreolas. The former are well known to be a little less rapacious than

the rest of the Foetorius species, and are renowned for being very fond of fish and above all of crawfish, though they do not feed upon them exclusively. As mentioned above, it has been suggested that the broadness of the tuberculated upper molars is strongly adapted to this sort of food. Pallas, one of the best zoologists of the beginning of this century, was of opinion that Siberia had no Lutreolas, especially because crawfish are wanting there. Now it is indeed striking how much the Itachi resembles the Noerz also in this respect. It feeds indifferently upon birds, mice and rats, and upon fish and crawfish. Schlegel and Temminck say quite correctly that, in consequence hereof the Itachi is quite as common on the shores of rivers, lakes, ponds and bays, as in the fields.

All the observers, and especially all the Japanese with whom I spoke about it, agree in stating that the Itachi is exceedingly fond of crabs and other crawfish. Now there being not many Martens (in fact in the main island only the *Ten* or Mustela melampus Temminck and Schlegel occurs, which in every respect very closely resembles our Mustela Martes, an inhabitant of woods and trees) and no Stoats, Weasels and Polecats in Japan, which could drive the Itachi from dry land, whilst on the other side the Otter, our Lutra vulgaris L., is not very rare, it is not at all surprising that the Itachi passes frequently not only into the fields and gardens but also upon the roofs of the houses, where it is pretty sure to catch many rats and is very often left undisturbed by the inhabitants. I scarcely need to add that by all these facts the conclusions drawn from the structure and the exterior of the animal are strongly confirmed.

The specific identification of Noerz and Itachi is at any rate not quite unimportant for the doctrines concerning the geographical distribution of animals. The number of species particular to Japan is reduced, and the union between the continental islands of the Japanese Archipelago with the rest of the palaearctic region or the northern temperate zone of the eastern hemisphere is rendered still more intimate and perfect. We see now that three very frequent carnivorous animals, animals which undoubtedly have not been introduced by men,—the Itachi, the Fox and the Otter,—are Euro-Asiatic species, and form a much stronger link between the Japanese and continental fauna than for instance the Badger or Anakuma, the *Ten* or Mustela melampus, the Wolf (*Yamainu*) or Canis

hodophylax. For these are distinct types, though it must be admitted that they are most intimately allied to certain palaearctic forms, and that perhaps there may be only the Nyctereutes, which among the carnivora exhibits oriental affinities. For the Japanese bear or *kuma*, which originally was identified with the Ursus thibetanus Cuvier (or torquatus Wagner) is now generally taken for a distinct species, U. japonicus Schlegel, and may be said to be akin as well to oriental forms (Malayan bear) as palaearctic (thibetan bear) and even American species (the Barribal). Those species which are occurring both in Japan and in America are either confined to the northern islands of Japan, as the Enhydris, the grisly bear, the Vulpes fulvus, or belong as well to the palaearctic as to the nearctic region, viz., the polar bear, which moreover is found only in the remotest parts of northern Japan, and perhaps the Mustela Lutreola, if we admit the identity of Noerz and Mink. The distribution of the carnivora is indeed far from corroborating the opinion which is expressed by Griffis on page 24 of his valuable book on the Mikado's Empire, that the Japanese types approach rather the remote American than the near Asiatic continent, an approach for which indeed we find just as little evidence among the other terrestrial and fresh-water animals and in mankind itself. The only true fact which might seem to corroborate this opinion is doubtlessly the high degree of affinity between the palaearctic and nearctic regions, in their totality and this affinity may be said to be also exhibited by the very near affinity—or perhaps identity—of the Canadian and palaearctic Lutreolas.

Indeed the Noerz and Itachi or the Foetorius Lutoreola L. must be called *palaearctic*, and the local separation of the Japanese and European specimens is theoretically of very slight importance and would not be of any great consequence even if the most minute investigation of Central and Eastern Asia would not yield any specimen of that species. This absence of it in the centre of the Euro-Asiatic continent may be easily explained by the struggle of life, which in Siberia, Mongolia, etc., could not be but a very severe one for an animal which wanted its favourite food and had to suffer by numerous and powerful or very active competitors. In Europe and Japan, under a more genial sky, on the banks of waters rich in fish and crawfish, this interesting species without any

doubt was more adapted to maintain itself, and in Japan where there was scarcely any competition it could scarcely fail to become the prevailing species of Mustelida.

ADDENDUM.

By a mistake of the lithographer the tuberculated tooth of the upper jaw behind the carnassial has not been distinctly separated from the carnassial, an error which we beg the reader to be so good as to correct.

THE AUTHOR.

Curtis.

THE SEVEN GODS OF HAPPINESS.

ESSAY ON A PORTION OF THE RELIGIOUS WORSHIP OF THE JAPANESE.

TRANSLATED FROM THE JAPANESE BY CARLO PUINI, AND FROM THE ITALIAN INTO ENGLISH BY F. V. DICKINS.*

[*Read June 11, 1880.*]

Shintôism and Buddhism, with their numerous subdivisions, and their innumerable deities, are the two main creeds that hold sway in Japan. Buddhism, as is well known, is of Indian origin, and was not introduced into Japan until a comparatively recent epoch. Shintôism, on the other hand, called also *Kami no michi*, is the national religion, as old as Japan itself. We learn from Japanese mythology that from Chaos, which contained in itself the germs of all things, were produced in the beginning a generation of beings termed Kami, of whom Izanagi and Izanami, the one a male, the other a female deity, were the last individuals; this generation came to be known as that of the celestial Kami. Izanagi and Izanami conceived the idea of creating a habitable world, and after they had espoused each other the female deity gave birth to the islands which constitute the Japanese Archipelago, and next to the mountains and streams, and further caused another series or generation of Kami to see the light who were known as the

*I sette Genii della Felicità, notizia sopra una parte del culto dei Giapponesi; traduzione dal Giapponese di Carlo Puini. Firenze, tipografia dei successori Le Monnier. 1872.

terrestrial Kami. These in their turn produced yet another generation, the human, at the head of which stands Jim-mu, who was the first Emperor of Japan and with whom begins the historical epoch of the Japanese world.

These supernatural beings or Kami form precisely the objects of the worship of the Shintô religion; the world since its creation is governed and directed by them; they hold rule over the elements and the seasons, over animals and over the products of the land, and they have the power of conferring happiness or sending misery upon mankind. The number of these Kami, especially of those of the two first generations, became greater with the progress of time, and in the ages which followed, all men who from time to time made themselves illustrious by their heroic deeds, by their wisdom and by their singular piety, were elevated to the rank of Kami, and, reverenced as such by the people, came to form the population of the Japanese Pantheon.

The ancient religion of China had consisted of the worship of genii or spirits, and to the Chinese all nature seemed animated by such beings, whom they called *shin*. This word is still used in Japan as a perfect synonym for Kami. The Chinese divide the Kami into greater or lesser gods as well as, like the Japanese, into celestial, terrestrial and human gods, but with this difference, that while the Japanese classification of these beings is based upon their greater or less nobility and upon the antiquity of their reign, that adopted by the Chinese has reference to their attributes and their places of abode. Thus with the Chinese the celestial spirits are those of the sun, of the moon and of the stars; the terrestrial, those which guard the mountains, the woods, the streams and the valleys, together with the tutelary spirits of the homes of men, or the lares, as one might term these latter, while the human gods are the souls of ancient heroes and ancient philosophers. (See Plath. Die Religion der alten Chinesen, Erste Abtheilung pp. 14, 67; et seq.)

The more immediate end which the followers of Shintôism propose to themselves is in a special degree the acquisition in this world of a state of happiness and well-being, and in this they closely resemble the followers of Taoism. Long life, health, riches and every kind of

prosperity, which is connoted by the Japanese word *fuku*, is the subject of the prayers offered by the people to the Kami. Hence they prefer their petitions more readily to those inferior Kami whom they believe to possess a more direct influence over the government of the things of the world and over the common affairs of life, than to those nobler Kami who abide in the higher spheres and to whom the ancient saw applies, "*quæ supra nos nihil ad nos.*" (Kæmpfer, bk. 3, chap. 1.)

Shintôism has no priests properly so called. The temples of the Kami are served by laymen termed *Kannagi*, *Negi* or *Sha-nin*, who are presided over by appointed chiefs or rectors (capi distinti) known as *Kannushi* or *Sha-mu*. Neither has it fixed rites, ecclesiastical ceremonies or regular forms of prayer; but every believer may worship the gods in such words and in such manner as he may deem proper.

As to Buddhism, Japan had no knowledge of it before the 6th century of our era; after the Buddhist faith had spread itself and taken firm root in China, it soon began to make its way into the peninsula of Korea. It was from the latter country that it was brought over to Japan, which now forms the extreme eastern limit of the diffusion of the doctrine of Śâkya. The *Nippon Ôdai Ichiran* says: "In the 13th year of the Emperor Kim-mei Ten-nô (A. D. 552), the King of Hiyaksai (one of the three kingdoms of Korea) sent an embassy to Japan with a statue of Buddha and certain religious books. One of the ministers of the Emperor, named Iname, sought to induce him to worship the new divinity, but another personage of the court, Mononobe no O-goshi, dissuaded the Emperor, saying:—'Our realm is of divine origin and the Dairi has already many gods to adore; should we pay homage to those of foreign countries our own deities will be offended.' The Dairi then presented the image to Iname, and the latter was so surprised at the gift that he caused his own mansion to be pulled down and a temple erected on its site, in which he placed the sacred image. From this time Buddhism began to be introduced into Japan and the temples known as *Garan* to be erected."—(*Nippon Ôdai Ichiran, translation of Titsingh*, edited by Klaproth: pages 34-35.) Eighteen years afterwards, say the thirty-first year of Kim-mei, according to the account given by another Japanese chronicle, an image of Amitâbha, which had been brought into the kingdom of Hiyaksai from Tenjiku, found its way into the Kami no

kuni (Japan) and appeared in a glory of light on the banks of a lake near Naniwa (now Ôzaka) without anyone having seen it carried there. Then the same Emperor Kim-mei, astonished at the miracle, caused the image to be taken into the province of Shinano, where, in memory of the event, a temple was erected, to which was given the name Zen-kô-ji, that became famous throughout the empire. (Kæmpfer, bk. 8, chap. 4.)

The simple and primitive character of Shintôism, and the fact that it remained in an almost rudimentary condition, without dogmas and without a clergy, were among the causes that lent rapidity to the diffusion of Buddhism in Japan. The establishment of various sects among the faithful could not, however, be avoided; while some wished to remain constant to the creed of their forefathers, others sought to fuse and harmonize the old beliefs with the newly imported doctrine. The former took the name of Yui-itsu, the latter that of Riyôbu. The Shingaku constituted a third sect, which, besides professing the united faiths of Shintôism and Buddhism, added to these the teachings of Confucius. As a rule the people of Japan believe with equal fervour in all the deities found either in the Buddhist or in the Shintô temples, and pray to the former and to the latter with the same ardour, the more pleased the greater the number of holy beings they find ready to listen to their progress and disposed to grant their petitions.

The text which we have selected for translation is a proof of this fusion of different doctrines and beliefs. The work from which we have made the selection is called *Ye-ma no te-hon*, and consists of explanations of various ancient pictures preserved in certain famous temples of Japan. These explanations are, for the most part, nothing more than a compilation of simple extracts taken from different works and bearing upon the subject, historical or mythological, of the picture, with a few observations by the author or compiler. Such is the nature of our text; and though the perusal of it is from this cause dry and wearisome, on the other hand it presents the advantage of bringing together in a few pages a series of notices taken from various treatises which it would be a difficult task to consult and which we do not possess. The notices of which we offer the following version have reference to the cult of the *Shichi Fukujin*, or the Seven Gods of Happiness, who are among the

most popular of Japanese deities. The text of our version begins on the 15th and ends on the 29th leaf (foglio) of the 2nd volume of the 2nd part of the original work.

The following are the names of the *Fukujin* or Gods of Happiness: 1, Yebisu; 2, Dai-koku; 3, Bishamon; 4, Ben-zai-ten; 5, Hotei; 6, Jurôjin; 7, Fukurokuju.

The collective name of *Fukujin*, given to these deities, which is the Chinese *Fuh Shin* (in the southern dialects, *Fuk Shan)* is by some Chinese-European dictionaries rendered Rustic Lares (Lobscheid, p. 338), and by others urban, domestic, rural and compital (Morrison, vol. 1, p. 255). The word *Fuku*, according to the Japanese dictionary published by Pagès, signifies 'prosperity', 'wealth', temporal goods which men pray for to Buddhist or Shintôist gods. But the expression *Fuku* with the Chinese and the Japanese specially connotes the notions of long life, wealth, health, love of virtue, and death by natural effluxion or by old age; and these desirable things they term the Five *Fuku* (go-fuku) or the Five Felicities (Haya-biki, p. 370, v. 5. Lobscheid p. 338).

The *Shichi Fukujin*, these beneficent deities, or if we prefer the expression, these Lares of Japan, are held in pretty high esteem by the common people, who have a particular predilection for them as promising to their worshippers the enjoyment in this present life of every kind of prosperity. Most of these supernatural beings are of Buddhist creation, or better, Brahmanic deities who have come to form part of the Buddhist Pantheon. Such are Dai-koku, Bishamon, Ben-zai-ten. Others are of Chinese origin, as Hotei, Jurôjin and Fukurokuju, of whom the last two are somewhat Taoist. Only one, Yebisu, is of entirely native origin. Notwithstanding this, our author strives, as we shall presently see, to identify some of the above-mentioned deities brought from India and introduced into Japan with Buddhism with the deities of his own land; a similar practice obtains in China so far as regards Avalôkitêsvara and some others among the most popular Buddhist gods.

I.—YEBISU OR HIRUKÔ.[1]

"In the Nippon-ki[2] (History of Japan) it is written that Hiruko was the offspring of Izanagi and Izanami; and that even when he had

attained the age of three years, he was unable to stand upright on his feet. On this account he was placed in a skiff, known as Ama-no-iwa,[5] made of camphor-wood, and abandoned to the waves at the sport of the wind. Thus it came to pass that the skiff reached the shores of the bay of Muko no kôri, in the province of Settsu, where, in consequence, the inhabitants of the country erected a temple in his honour; and many were the prodigies there performed. This temple is that of Nishi-no-miya."[4]

"In the Shinsha Keimô or Catechism of the Doctrine of Gods and Temples, we are told that it is an error to give this god, as the vulgar do, the name of Yemisu Saburô, in that the latter is the god of Ikki[6] while Hiruko is the younger brother of Amateru ohongami."[4]

"In some chronicles it is related that while the Emperor Jim-mu was fighting against Nagasune-hiko,[7] the imperial army, having come to the end of its munitions, found itself in evil case. Then the god known as Shiinetsu-hiko drew out of his quiver an endless store of arrows, and the army, with renewed courage, put the enemy to flight with showers of darts. Next, provisions failed too, and the Kami again drew from his quiver such a quantity of victuals that all the soldiers had sufficient; and not content with this, he caused to issue from the same quiver an inexhaustible mass of precious objects, so that every man in the imperial army was made wealthy. The Emperor, greatly astonished at these things, asked him: 'How is it that thou hast the power of a god?' The Kami Shiinetsu-hiko answered: 'I am a Kami of the noblest descent, but of this more anon; for the present urge me no further with thy questions.'"

"Some time after, while Jim-mu still ruled over the empire, he again asked Shiinetsu-hiko what that noble descent might be, to which allusion had on a former occasion been made. To this Shiinetsu-hiko answered: 'I am the Great Kami Hiruko no mikoto.[8] I am the child of the progenitors of thy divine predecessors, and I have come to defend thy majesty. I hold dominion over all the riches of the earth. If I take the fields under my protection, I render them fruitful; if I protect merchandise, I cause trade to flourish; if I protect the sowing of the fields, I give abundant harvests; if I come to the aid of armies in the hour of battle, I give them victory; if I direct the labours of the court,

the government prospers. I am the god who, in his hands, holds all the good things of the world.' Having thus spoken, he returned to his abode in Hirota no kuni."[9]

Notwithstanding that our author, in common with other writers, looks upon Yebisu and Hiruko as separate personages, the two deities are commonly confounded, not only in the minds of the people but also in most Japanese books. The vulgar worship the Kami of the temple known as Nishi-no-miya as much under the name of Yebisu as under that of Hiruko.

"Yebisu," says the Dictionary Shogenjigo, "is the Kami worshipped at Nishi-no-miya, a temple situate in the district of Muko no kôri, in the province of Settsu. This Kami has, too, the name of Hiruko no mikoto, and also that of Yebisu Saburô." (K. 8, f. 15, v. 6.) Under the word Hiruko the same dictionary repeats that the god (Hiruko) "has his principal abode in the Temple of Nishi-no-miya, in the province of Settsu." (K. 8, f. 16, v. 8.) The Japanese dictionary published by Pagès says that this deity is Ara Yebisu and "the Kami of the kingdom of Dzu no kuni (province of Settsu), worshipped at the retreat called Nishi-no-miya." (Pagès. Dict. Jap., p. 80.)

Hiru means leech; Yebisu means a savage race. How was it that these two different names ever came to be given to the same personage, or how came two personages having such different names to be confounded in one? Before the conquests of Jim-mu and his foundation of the Empire of Japan, the Japanese archipelago was inhabited by a barbarous race, which had much in common with that which then occupied and still occupies the islands of Yezo and Tarakai, the Kurile isles and the peninsula of Kamschatka. To these savages was applied the term *mô-jin*, hairy men, but their better known and generic name was Yebisu or Yemisu, which signifies barbarous. After Jim-mu, who had started from the island of Kiushiu, the seat of his government, to conquer the archipelago, had landed in the province of Settsu, he fought in that of Yamashiro against Nagasune-hiko, and the people with whom he had to struggle were these very Yebisu. He subdued them and brought them under his rule, and in the newly conquered country founded the capital city of his new empire. Whence came this savage race that afterwards, civilised and confounded with the invaders, formed the

Japanese people? Jim-mu called himself the descendant of the last of the sons of Izanagi and Izanami, and was, so to say, the representative of the noblest and most civilised race of those distant times. But another son of Izanagi and Izanami, Hiruko no mikoto, according to the account given by our author, who preserves the ordinary legend of the origin of the Japanese people, was, by reason of his unfortunate physical defects, to which perhaps he owed his name, neglected and despised, and was finally placed in a skiff and abandoned to the mercy of the waves. The wind bore him to the province of Settsu, the shores of which arrested his further progress. Now, if in those remote ages the eastern parts of Japan were as yet uninhabited deserts, he was probably the progenitor of the race of Yebisu; if on the other hand the country was already occupied by barbarians, it is certain that they were the first to make him an object of religious worship, and he was their god. One text, besides, calls Yebisu Saburô the God of Ikki. The word Ikki, as differently written in Chinese characters, may be taken here in lieu of its homophone Ikki, which means revolt or rebellion; and the name Ara Yebisu (rude and barbarous) given to this deity (Pagès Dict. Jap., p. 80) might then very well be rendered The God of the Rebels or Ikki no Shin, as our text has it. It is not, then, improbable that this Kami, worshipped as a grandson of Izanagi and Izanami under the name of Hiruko no mikoto, was also remembered under the name of Yebisu as progenitor of the barbarous people so called, or as one of the first deities these latter made an object of their worship.

II.—DAIKOKU-TEN.[10]

"This is a Buddhist deity similar to *Marishi-ten*.[11] Soldiers invoke his aid for victory; bonzes[12] venerate him, praying him that devout offerings may not fail for the maintenance of the religious community; and the people constantly adore him, imploring him to grant them every kind of well-being."

"In the work intituled *Bussetsu Makakiyara Daikoku tenshin Kiyô* (or the sûtra of the divine Daikoku in the books of the Buddhist law called Mahâkâla) it is said: 'As he possesses the omnipotence of a

god,[13] he came into this world,[14] and made himself known as Daikoku tenjin; and speaking to Buddha he said, I will scatter my good works among all living who may be in affliction and misery.'"

"It came to pass, also, that he took once the figure of an Ubasoku.[15] Then the Venerable of this World,[16] with an air of benignity and with a smile upon his lips, recited to him the following Dhârani:[17]—'Nômaku sammandaboda nan on Makakiyaya Sohaka.'"[18]

"Then Daikoku tenjin turned to Buddha and said: 'If any one among living men, even among unbelievers, should retain this Dhârani, and having caused an image to be graven in my likeness, be it of five feet or of three feet or even of five inches only in height, should place it in a temple;[19] if a devout worship should be paid to me in families, for the space of seven generations I will scatter throughout the world 84,000 beneficent genii belonging to the order of the Tenniyo,[20] and each morning I will care for the maintenance of a thousand priests. If in what I say there be a word of untruth, myself becoming a slave to evil passions, I shall not return to original wisdom, and meanwhile I implore that the sweet dew[21] may descend upon whosoever may make me holy offerings of precious fruits and generous wine.'"

"Now one day Daikoku having revealed himself to Dengiyô Daishi,[22] said: 'I believe that since I care for the maintenance of a thousand religious persons I may call myself the protector of convents.' The Daishi answered: 'On the mountain where I dwell abide three thousand disciples. For long have I entreated that lodging be found for these also.' Daikoku nodded assent. Then in three places on the mountain Hiyeizan[23] rose temples to Daikoku, to whom was given the name of Protector of the Buddhist Law."

"Nichiren Shônin[24] has preserved the memory of this event in his Elogium of Daikoku. It is stated, too, that on the Kinoye-ne days (the first of every cycle) a hundred black beans are offered to Daikoku, and this proceeding is termed The Mystery of Mysteries. As to the images of Daikoku which are held in veneration in the refectories and also in the butteries, hear what is said of these in a book intituled *Nankai kikiden*:[25]

"In the great convents of India by the columns of the refectory or in front of the door of the buttery is exhibited an image

of Daikoku carved out of wood. Sometimes when these images are two or three feet in height they are placed upon a species of small altar known as *Shinnô no yuka* (Couch of the King of the Gods).[26] He is represented in a squatting position with crossed legs, holding in his hand a small bag of cloth of gold; or better, sitting upon a small chair with the legs hanging down. The brethren are then in the habit of going each one up to the images of Daikoku, and rubbing and anointing them with oil, so that they soon become of a brown colour. Hence the name *Maka-kara* (Mahâkâla)—a word which means just The Great Black one."

"At meal-times the brethren devoutly burn incense before him, and then set before him a portion of the food of which they may be partaking."

"From of old it has been handed down by tradition that this sect, belonging to the family of Mahâdêva,[27] favours the Sacred Trinity;[28] and this is the Protector of the Five Attributes,[29] constituting the essence of humanity, and is incapable of working harm to any one. Every prayer that is offered up to him he will grant."

"The images of Daikoku, in the form in which they are most commonly met with, represent a figure wearing a round flat cap on its head, and holding a mallet in the right hand, while the left grasps a sack slung over one shoulder. It stands on bags similar to those in which the Japanese pack rice and other grains. The garments are of the fashion of such as are worn in Japan."

"But the ancient and original images of Daikoku show us a figure standing upon an unclosed lotus-flower, in lieu of rice-bags; and without the hammer for going through the ceremony called Tsuchi no In."[30]

"The vulgar belief is that the rat is sacred to him. This false belief, however, we may suppose due to the fact that the days consecrated to him are marked by the cyclic characters Katsu-shi (or the rat). How, indeed, could a god protector of rice and grains favour the animal that lives by thieving these?

"Some writers tells us that Yebisu is not really Hiruko no mikoto, but Kotoshironushi no mikoto, son of Ôanamuchi no mikoto.[31] One of the names of Ôanamuchi no mikoto was Ôkuninushi no Kami, that is to say, The Kami Lord of the Great Realm. Now the Japanese words Ô kuni (Great Realm) are the same as the Chinese Dai-koku or Tai-koku;

Tai-koku (Great Realm) and Tai-koku (Great Black one) are of identical sound; hence the deity known as Daikoku is no other than the god Ôanamuchi no mikoto. Again, as the latter is the Protector of Realms it was a natural thing enough to range him among the Gods of Happiness."

"It must also be remarked that the name of Kotoshironushi, son of Ôanamuchi, means literally Settler of the Prices (values) of things, and it is on this account that this Kami is worshipped by traders.[23] The latter, when they cause images of Daikoku and Yebisu to be made, use timbers of old bridges. This they do because such timbers, having afforded safe and secure passage over streams to thousands of persons, have thousands of times received the blessings of those who trod them."

Daikoku, the name of the second of the Gods of Happiness, is the translation, through the Chinese, of Mahâkâla, which is one of the names of *Siva* and of the other *Sivan* deities. (Kœppen, Die Religion des Buddha, vol. ii, p. 30-298.) This god was added to the Buddhist Pantheon with other Brahmanic deities; but the Buddhists distinguish him from *Siva* and say that he was a disciple of Mahâdêva (which is, however, but another name of *Siva*), a celebrated religious person (Arhât) who brought heresy into primitive Buddhism. As our text shows, and as is apparent from other Buddhist texts, Mahâkâla is confounded and identified with another Brahman deity, bearing the name of Marishi; the latter being considered as the personification of the light emanating from Buddha, or one of the *Mânasa putra*. (Vishnu purâna 49, 55). The Chinese and the Thibetans, too, recognise in Marishi, not so much *Siva* himself, as another deity of the family of *Siva*, perhaps *Chundi*; the name of another form of *Bhîma*, wife of *Siva*, also known as *Durgâ* or *Parvati*. In a Buddhist legend given in a Chinese work the Sanskrit name of *Kala* is applied to the sister of *Kung-te*, goddess of merits or deserts (meriti), and while the latter is represented as beneficent and compassionate, Kala, on the contrary, is represented as perverse and fond of working every kind of evil. It is strange to see how Mahâkâla, god of destruction, or according to the Buddhists disciple of the founder of an heretic school, has come to be placed among the Gods of Happiness and considered as the protector of convents and of religious brethren. Notwithstanding that the recognition of the Brahmanic deity Mahâkâla in Ôanamuchi no mikoto is merely a fanciful

hypothesis on the part of our Japanese author, it is worthy of remark that the attributes of Ôanamuchi are to some extent similar to those of Mahâkâla, a divinity who, like the Japanese Kami, protects realms and peoples, freeing them from the disorders of wars and from other calamities.

III.—TA-MON-TEN.

"Ta-mon-ten, in India called *Bishamon* by reason of the fame of his wealth spreading throughout the world, became familiar in the mouths of all men under the name Ta-mon, that is, one who hears his name often uttered."

"He is represented grasping in his left hand a spear, which with outstretched arm he plants firmly in the ground, and in his right hand, the arm being bent, bearing a small pagoda. He wears a cuirass of gold, his feet are on the shoulders of a woman, and from below rise up clouds which are about to surround his form."

"In the *Hokke Fu-mon-bon*[83] it is said: 'To such as seek after salvation[84] by the aid of Bishamon, the god, revealing himself, preaches in person the Law of Buddha.'

"The commentary on the *Hokke* says that the god is called the Celestial king of the northern Region. As to his name of Ta-mon, it teaches that, being the protector of places where religion is preached, he is constantly hearing the Law, and hence is called Ta-mon or the one who constantly hears (the Law)."

"In the *Tai-ron*,[85] too, it is repeated that in China he is known as Ta-mon, with the addition that he is the Lord of the *Yasha* and of the *Rasetsu*."[86]

"In the *Saku-in* it is written: 'The fame of his wealth and power being carried everywhere by the four winds of heaven, caused him to be familiar in men's mouths also under the name of Fu-mon (universally famous). In the palm of his divine hand he carries the pagoda in which are contained the relics of the ancient Buddhas.'"

"The *Kon-gô-miyô-kiyô*[87] observes that Ta-mon is known also as Shiu-jiu-mon (of various fame); and that his abode is on the mountain *Sui-shô-zan*."[88]

"The work *Hanniya sekiketsu-ra-ki* speaks thus of the deity: 'He carries a cuirass of adamant magnificently ornamented; in the left hand he holds a three-pronged (barbed) spear and with the left he grasps a sword.'"

Bishamon, from the Chinese Pi-sha-mon, is the Japanese name of Vâiśravaṇa, one of the four Kings of Heaven (Shatur Mahârajâ) who stand at the four sides of the mountain Mêru as guardians of the world. Mêru is the central mountain which, according to Buddhist cosmology, serves as the axis of the universe, and about which are placed the heavenly bodies. It is surrounded by seven continents, in the form of concentric circles, separated from each other by oceans. Of the four sides of the mountain, the eastern is of gold, the western of silver, the southern of lapis-lazuli and the northern of glass; on the summit is a palace called Adakavati, where dwell the thirty-three Dêva. The four Kings of Heaven, or guardians of the world, stand at the four cardinal points of the mountain. From the eastern aspect rules *Dhritarâshtra Dêvarâja (Ti-teu-lai-to*, or *Ti-to-lo-to)*, whom the Chinese call *Shi-kwo-tien-wang*, the Heavenly Ruler of Realms; his followers are the *Gandharva* and the *Pisacha*. From the western aspect rules *Virûpâksha Dêvarâja (Pi-lien-po-sha)*, called by the Chinese *Za-yu*, the Confused Speaker, who is head of the *Nâga* and of the *Pûtâna*. *Virûdhaka Dêvavâja (Pi-lieu-li-sha* or *Pi-lieu-li)* chief of the *Kumbhânda* and of the *Prêta* is the name of the god who keeps watch on the southern aspect. Lastly the king of the northern region is *Bishamon* or *Vâiśravana Dêvarâja*, also known as *Dhamada*, Prince of the *Yaksha* and of the *Raksha*.

Vâiśravaṇa (the renowned, the glorious one) owes his name to the great repute he had in the world; hence the Chinese call him Ta-wan and the Japanese, following their example, Ta-mon. But as the word Ta-wan can also be explained as one who is heard by many or who hears much, one text gives the reason of these two different significations. In the first case reference is made to the renown which this personage enjoyed by reason of his great riches and virtues, so that his name was upon all men's lips; in the second case allusion is made to the attributes of Vâiśravaṇa, as one of the Great Kings of the gods (Tai-shin-wang) who guard the entrance of temples and of places sacred to religion (see note 26), so that all that is in such places preached or uttered is heard

and holding in his left hand the jewel, symbol of divine wisdom,[47] to lay low the God of Hunger and Thirst, turned from the point between the south and the east and assumed watch over this region."

"If one desire to make offerings to this deity, let him choose the first quindecad of the month.[48] Specially propitious days for this are the 1st, 3rd, 5th, 7th and 13th of the month, but the 8th, the 14th and the 15th are likewise excellent days. Should one be unable to make offerings on any of the first 15 days of the month, let him resort to such days as are marked in the calendar by the cyclic sign *Tsuchi-no-to-no-i.*"

It would seem that in the person of this fourth of the Gods of Happiness are comprised and confounded two different deities, one of Buddhist origin, known in our text as Ben-zai-ten, the other a Japanese deity. Ben-zai-ten is also called *Kô-toku-ten-niyo*, Goddess of meritorious works (in Chinese Kung-te, see page 487); and again *Miyô-on-ten-niyo*, Goddess of the Marvellous Voice, or lastly *Bi-in-ten-niyo*, Goddess of the Beautiful Voice (Shogenjigo 3. 8, r. 2 and 3; 13 r. 5.) This latter designation reminds one of the Sanskrit *Madhuraśvara*, name of a monarch of the Gandharva; and it would appear that Ben-zai-ten originally was one of this class of fabulous beings, who are musicians in the suite of the God Indra. Indeed, in the figure given in the text, Ben-zai-ten is represented playing upon a stringed instrument.

With regard to Ben-zai-ten the Japanese relate the following legend, which shows how the common people have held to the national origin of this deity. A rich man who dwelt nigh the river *Rindzugawa* had a daughter called *Bunsho*, who became the wife of *Shimmiyôsu Daimiyôjin*. Many years passed by without her giving birth to any sons, and on this account numerous sacrifices and prayers were offered up to the Kami to obtain the wished for offspring. At last she found herself with child; but instead of giving birth to a son she produced 500 eggs. Surprised and affrighted at this extraordinary circumstance, and fearing lest from the eggs, on their breaking, might issue forth monstrous beasts, she caused them to be placed in a basket and thrown into the river. The basket was found by a fisherman, who opened it, and seeing that it contained such a prodigious quantity of eggs, carried it home to his wife. Hoping that the eggs would produce as many

chicks, he placed them in warm sand, but what was his astonishment when he saw issue forth from them, not 500 chicks but a like number of human infants. The unlucky wight, who hardly had enough to keep body and soul together with for himself and his wife, was terribly put to to find food for such a crowd of children. While they were young he got on as well as he could, but when they grew bigger he advised them to go to the neighbouring castle of the *seigneur* of the locality and ask aid from Bunsho, who was reputed a charitable lady. So the 500 went to the castle to beg for alms, saying they were produced from 500 eggs found in a basket floating upon the neighbouring stream. Bunsho thereupon recognized them as her own progeny, since she herself had brought forth the 500 eggs; and the youths remained in the castle and became lords, while their mother was ranked among the goddesses and held in extreme veneration.

Uga-no-kami, according to our text another name, or, at least, another form of Ben-zai-ten, is a very popular deity in Japan, being looked upon by the people as the god of the five kinds of cereals,[49] known also under the name of *Ukemochi no Kami* or the Kami Protector of Food. Him they distinguish from Ben-zai-ten; and tradition awards him the honour of being the first to discover and cultivate rice.

If Uga-no-kami or Uga-shin is, as the text seems to show, really of Buddhist origin, he became a deity almost entirely Japanese, being identified with *Inari* or *Inari sama*, under which name he is more commonly adored in Japan. His worship is universal; and there is hardly a house where a small shrine consecrated to him may not be found, while the festival held in his honour in the course of the second month is among those which the Japanese celebrate with the greatest pomp and noisiest rejoicings. The fox is sacred to Inari, being regarded as his messenger; hence this animal is held in the highest esteem and is even looked upon as an actual personification of the deity, while homage is paid to him in the numerous chapels and temples dedicated to Inari, which are found everywhere throughout the country.

V.—HOTEI KUWASHÔ.[50]

"From the *Den-tô-roku* it appears that Hotei was known under the name of *Chôteishi*,[51] but the name of his family is not ascertained."

The habit of going about begging for the necessaries of daily existence is common to all Buddhist friars, upon whom it is enjoined as their principal duty to live entirely upon alms. Hence their early name of *Bhikshu*, which signifies *beggar*.

The Japanese call Hotei by the name of *Miroku* also. (Kæmpfer, bk. 3, chap. 4, Shogenjigo 4,4, v. 5.)

This name is a corruption of the Sanskrit *Mâitrêya*, the Buddhist designation of the Buddha to come—of the Buddhist Messiah in fact. Hotei seems, therefore, to be regarded by the Japanese as a form of Mâitrêya, or rather as destined to become Mâitrêya in the course of time.

The place of honour assigned to Hotei by the domestic hearth is in China given to another deity there known under the name of *Zao-sin*, or the God of Ovens. This deity belongs equally with Hotei to the series of domestic Gods or Lares, who, according to the Chinese, are five in number; their images are placed upon the ovens in kitchens and there worshipped like those of Hotei, and, like the latter, renewed from year to to year. Zao-sin, however, has nothing to do with the bonze Hotei, being one of the gods of the ancient Chinese religion, and, as such, referred to in the works of Confucius (Lun-yu, Kiuen II. fol. 5.), and the five domestic gods of the Chinese are equally unconnected with the seven Japanese Lares or Gods of Happiness.

VI.—JU-RÔ-JIN.

"The stars of the South Pole, called by some *Nan-kiyoku-rôjin-sei*,[62] preside over human longevity. The stars *Rôjin* form part of the constellation known as that of the Well. Works on astronomy tell us that at the spring equinox they are seen to rise from the *fei* quarter (a point of the horizon intermediate between S. and S.S.E.),[63] and that at the autumnal equinox they are seen to traverse the evening sky from the opposite quarter."

"Among the stars of the constellation there is one called *ko-no minami*,[65] on the austral polar circle.[64] When this star shines in the full splendour of its light, peace and tranquillity reign throughout the land; when the case is otherwise, it is a most pernicious sign. The

star possesses an influence upon the term of human life.[65] As, however, the South Pole is 86 degrees below our horizon it is impossible to see it from our country.[66] The influence of the star only makes itself felt at its appearance above the horizon (that is about the time of the equinox); but these appearances occur at long intervals."

"In the *Fû-zoku ki* or Record of Customs, we read: In the year *Gen-yô* of the *Sô* dynasty[67] there lived in the metropolis[68] an old man, three feet high, and with a head that made up half his height."

"A merry-eyed, long-bearded man, clad in red raiment and bearing on his head a cap wrapped round with a cloth, he daily frequented the market-places and there, drew lots and told fortunes, thus contriving to gain a few coins which he spent in drink. At times he would beat his head against the ground, exclaiming, 'I am the Holy one who can prolong the lives of men.' One day a magistrate, struck by the strange appearance of the old fellow, drew his portrait and presented it to the Emperor,[69] who ordered the ancient to be brought to the imperial palace, and when he made his appearance asked him:—

"'How old art thou?'

"'I come from the region of the south,' answered the ancient. 'I am fond of wine, and when I am drunk I speak best.'

"The Emperor at once commanded wine to be brought and ordered him to drink of it. After the old fellow had drunk off a gallon or so[70] he assumed a majestic deportment and said:—

"'Each time thou shalt see the waters of the Yellow river become clear, abundance shall reign in thy dominions and comfort among thy subjects. The fresh breezes shall fill the courts of thy Palace, and the white clouds shall shine in the heavens.'

"The next morning the hereditary Prince addressed the Emperor, saying, 'Without our knowing of it the orbit of the star of long life has come into contact with the Imperial Throne.'[71] The Emperor, who was greatly astonished at what had occurred, exclaimed: 'Now I understand! The ancient whom we have just seen is the Star of Long Life.' He caused him to be sought for everywhere but without success, and taking his portrait he uttered these words of praise:

"'O Rôjinsei, Rôjinsei! after having made thyself merry with wine for an instant thou hast returned to the skies. Each time that we shall

behold the waters of the Yellow river made clear and limpid, the term of life will be prolonged without the marks of age showing themselves to our observation.'"[73]

Rôjinsei indicates the 'Southern region of the heavens' (Hayabiki, f. 226, v. 3) or the stars which cluster round the South Pole. (Kang-hi Tzŭ-tien, clas. 75 f. 75, r.) The Constellation of the Well to which the star *Ko-no minami*, one of the Rôjinsei, belongs, is, in fact, the 'name of the constellation of the southern region.' (Kang-hi Tzŭ-tien, clase 75, f. 75, r.) Now the Constellation of the Well is identified with a patron of the Zodiacal Constellation Gemini, but it is to be observed that no star of this latter constellation shows itself so far thrown out towards the South Pole as to enable the constellation to include the star *Ko-no minami*, which, according to our text, is situate on the border-line of the South Pole, and cannot therefore correspond to any of the stars of the Constellation Gemini, however distinct the statement in the text which we translate that it is a member of the constellation known as that of the Well.

The Shogenjigo says that Jurôjin is the name of him who was transformed into the Southern Star of Long Life (Nan-kiyoku Rôjinsei); by him stand a white stork and a crow. According to the Chinese Taosse certain stars called *San-tai* and *Pe-teu* belonging to the Great Bear preside over human longevity; and the Goddess *Tao-mu*, represented with eight arms, is regarded as a personification of those stars of the north that possess an influence over the lives of men. But the southern stars above mentioned have also, even among the Chinese, power of longevity, and the latter say that the God of the South Pole has at his orders a youth with the head of a white stork called the God of the Star *Nan-sing*.

VII.—FUKU-ROKU-JU.

"The images made at the present day of *Fukuroku* have the form of a dwarf."

"The chronicles tell us that *Ya-kuwa-boku*, who dwelt on the mountain Siunanzan, possessed the power of scrutinizing (scrutare) the

human heart, and of recalling to life persons who had died a sudden death, and that great was the number of those who studied his doctrine."

"Now one day *Ya-kuwa-boku*, in the course of a discussion with one of his disciples, named *Saisho*, said:

"'I feel that a stranger is about to make his appearance here.'

"A day or two afterwards, in fact, a man appeared, five feet in height, three feet in breadth, and with a head forming half of his entire person. He had a long beard, wore garments of a red colour, and held in his hand the *Kotsu*.[73] He laughed immoderately, and grinning from ear to ear said the most ridiculous things in a language different from what was the common talk of folk. The disciple Saisho went to the end of the garden; and the new comer following him attentively with his eyes, said to Ya-kuwa-boku:

"'This disciple of yours is he not the god of the mountain Tai-san?'[74]

"'Just so,' answered Ya-kuwa-boku. When the new comer had finished eating some refreshment he went away. Then Ya-kuwa-boku called the disciple Saisho and said to him:

"'He who came here just now was the Supreme Being[75] and in talking with me in a friendly manner he called you the God of the Mountain Tai-san. Do you know what this means?'

"And Saisho answered:

"'From what I have heard fall from your lips up to this moment, I have already gathered that I was destined to become the God of Tai-san in a future existence. But of the events of my past life, nevertheless, I have no memory whatever.'"[76]

"It is to be observed that the images of Jurôjin represent an ancient, and that besides there are attached to them the figures of a stag, a tortoise and a stork. The tortoise and the stork are emblems of longevity, and the stag, which in Japanese is known as *Roku*, recalls precisely the name of Fuku-roku. In addition Fuku-roku is represented as a dwarf, and with reference to this in the record of customs we are told that the sixth God of Happiness Rôjin is also a dwarf; one may therefore, with all probability, suppose that these two gods were originally but a single individual."

It is very likely, as our author conjectures, that Rôjin and Fuku-roku constitute but one individual. In fact, the Shogenjigo even tells us

that Fuku-roku was a Taosse, who, in the year *Kiayen* (1056-7) of the *Sung* dynasty, was transformed into the Southern Star of Long Life (*Nankiyoku rôjinsei*) and thus gained the name of *Kō-no minami* as well as that of *Jurôjin*. (427, v. 2.)

It is not easy, however, to comprehend at the first glance how this can stand with the text of our author above quoted, which concerns itself with anything rather than with Fuku-roku and gives us no clue as to which of the personages mentioned represents the seventh God of Happiness bearing that name. The probabilities seem all to point to the necessity of enrolling Saisho, the God of the Mountain Tai-san, among these domestic deities of the Japanese; and to the name *Fuku-roku-ju*, which signifies Happiness-appointments-long-life, being considered a mere appellative of the god indicating the favours which he bestows.

VIII.

"Some replace the preceding member of the Happiness-heptod by a different god called *Kichi-jô-ten*.

"In a Buddhist work intituled *Sûtra* of the Twelve Lauds of the *Tenniyo Kichi-jô*, it is said: 'Whosoever shall learn the Twelve Lauds of the great Tenniyo Kichijô, and preserving a perfect recollection of them shall recite them devoutly in her honour, with religious rites and holy offerings, shall ward off all misery and sin from his life and shall attain an immense wealth of prosperity and well-being. The Lauds and Salutations (allegrezze) of this goddess are the following; Harbinger (auspice) of Happiness; Flower of the Lotus; Splendour of Majesty; Rich in every good; Fair of Complexion; Renowned and glorious; Centre (pupilla) of the Flower of the Lotus; Dazzling in splendour; Bestower of alms; Bestower of Bread; Gemmeous splendour; High Harbinger of good fortune.'"

"Here follows the *Dhârani* of the Goddess *Kichijô*:

"Ta-ni-ya-ta si-ri ni-si ni sau-ba-giya ri-ya sa ta-ni shitsu-ni ni-ni-ni a ra-ki-shi-ya-nau-sha-ya so-fa-ka."

"This *Dhârani* and the Twelve Lauds, in addition to forming, during this life, a sort of bulwark against all miseries and griefs of every kind, have the power of procuring the complete fulfilment of all our prayers. If this Sûtra be devoutly recited morning and evening, the whole being repeated three times during the day, without omitting to keep it constantly in memory throughout; if with entire fullness of heart, according to our powers, and with sincerity, devout offerings be made to the *Bosatsu Tai Kichijô tenniyo* we shall obtain at once treasures of every kind, crops in abundant plenteousness, a prosperous career, tranquillity and joy."

"This deity has the power of granting happiness and contentment to every one of living creatures, however innumerable the hundreds of thousands of millions of them may be. And she can likewise bestow to satiety whatever may be necessary in this life, raiment and food, even treasures, such as gold, silver, emeralds, agates, cornelians, coral, amber, pearls and other precious things."

"In the work called *Shotenden*, this Deity is called *Tai kudoku ten*, and it is there further said that whosoever may desire that his own prayers and wishes should be granted cannot do better than make sacred offerings to a Dêva such as this who loves to be praised, with the invocations:—Giver of what is asked—Bestower of favours—Deity of Supreme Beneficence."

With the word 'Kichi,' which means *happy omen*, the Chinese and the Japanese translate the Sanskrit word *Srî*, which as prefix or suffix forms part of many names of divinities and others, and of the titles of Buddhist works. The Thibetans render *Srî* by the word *Dpal*, signifying *noble magnificent*. *Kichi ten* is then the name of Srîdêva, a title of Mahêsvara or Siva.

The Shogenjigo says—and our text corroborates the statement—that this deity bears also the name of *Ku-doku-niyo*, the *goddess of merits* (good-works), and that of *Tai kudoku ten* the *Great Dêva of merits*. It says further that the deity was a son of *Takchaka*, a king of the Naga called the *Perfect* and that his mother's name was *Hâritî*.

Of Hâritî, to whom the Chinese give the name *Kwei-tzŭ-mu*, the Mother of Demons, the legend relates that she was a wicked woman who devoured children; and that she gave birth to five hundred sons,

whom she nevertheless devoured, one every day. Śâkya Muni converted her, and she turned into a pious and ardent *Bikshuni* (nun), afterward worshipped as a saint.

The *Nan-hai-ki-kuei-nei-fa-chuen*, k. 1, fol. 18, cited in a note in the Fo-kue-ki of Rémusat, states that in all the temples in India the image of Hâritî is honoured under the form of a woman, holding on her knees one, two or five children. Every day sacred offerings are made to her, and it is believed that she accords a numerous offspring to whomsoever may bestow alms upon the convent where her temple rears itself.

END.

F. V. DICKINS.

Abbeville Road,
Clapham Park,
Feb. 4th, 1880.

[I have throughout in most cases rendered 'genio' and 'spirito' by 'god,'* and for the most part have preserved the translator's spelling of Chinese words. Some portions of the renderings of extracts from Japanese works were to me rather abstruse, but I have made the best I could of them in the absence of the texts themselves. The essay shows great industry and extensive learning, and as such I have thought the present translation of it might be acceptable.]

* It might conduce to clearness if the term 'god' were restricted to beneficent and the name 'demon' applied to maleficent, deities.

NOTES.

[1] I must here record my grateful thanks to my learned and amiable master, Professor Antelmo Severini, who, in addition to having afforded me considerable assistance in the translation of the text, has kindly furnished me with the books and other materials which have enabled me to throw all possible light upon the version itself.

[2] The *Nippon-ki* in 30 volumes contains a history of events from the creation up to A. D. 720. At the present day it forms part of a great work in 150 volumes, embracing the history of the Japanese Empire up to the year 887 of our era.

[3]This skiff is one of the many productions of the union of Izanagi and Izanami, who, as we have seen above, begat not only beings similar to themselves, but also islands, mountains, trees, etc. Pfizmaier, in his *Japanese Theogony*, calls it *Himmels Felsenkampherboot*. *Amanoiwa* means "Heavenly or celestial rock." The skiff is also known as *Tori-no-iwa kusubune*.

[4]This temple or sanctuary is situate in the province of Settsu upon the sea-shore. (Pagès Dict. Jap., p. 30 sub. voce Arayebisou). Here drifted the skiff containing Hiruko no mikoto.

[5]See page 434.

[6]*Amateru* or *Amaterasu*, a deity also known as *Tenshô daijin*, was the first of the terrestrial spirits, that is the first-born of Izanagi and Izanami. Hiruko no kami was the third child of their union. She bears the title of Ohomi kami, or that of Ohohirume no kami.

[7]Jimmu was the son of the 5th of the descendants of Izanagi and Izanami. He dwelt in Hiuga, a province of the island of Kiushiu, the most southern of the Japanese Archipelago. He conceived the design of conquering the whole of Japan, and starting, with this object, accompanied by an army and fleet, from the island of Kiushiu, he invaded and reduced to submission vast territories. He fought various battles with the barbarous peoples who inhabited the countries he invaded; the most famous combat being that with Nagasune hiko, who then ruled over the province of Yamashiro. Jimmu, after having brought this province under his sway, built there the first Imperial Palace or *Dairi;* and he was the first sovereign of Japan honoured with the title of Mikado.

[8]Mikoto is a title given to all celestial and terrestrial deities, and to famous personages of antiquity.

[9]Hirota no Kuni is an old name of the province of Settsu.

The following note of the Japanese author terminates the portion of the text relating to Yebisu.

"Hiruko is the Great Kami of Nishi-no-miya; and he dwells in the temple of the Great Kami of Hirota in the province of Settsu: he is commonly called Yemisu."

[10]The word *Ten* or *Den*, in Chinese *Tien*, placed after all names of Buddhist deities, corresponds to the Sanskrit word *Dêva:* it is a class-appellative of all Brahmanic gods and of all the beings who have their abode in the six Dêva lôka. In the Buddhist dictionaries of the Chinese the word Dêva is defined: *Fan-tien-gin*, or, *Beings dwelling in the Heaven of Brahma;* or *Tien-sin*, "spirits of Heaven." *Tien-sin*, in Japanese *Tenshin* or *Denshin*, is often used, as may be seen in our text, in lieu of *ten* alone, after the names of deities.

[11]The Shogenjigo, k. 10, f. 99, r. 1, names two kinds of trinity, of both of which Daikoku and Marishi are members. The first of these is called The Trinity of the Three Gods of bow and arrows, and consists of Marishi, Benzai, and Daikoku; the second, known as The Trinity of the Tricuspid spear, is composed of

Marishi, Daikoku and Bishamon. As to Marishi and Daikoku, see the note at the end of this second chapter; as to Benzai and Bishamon, see chapters iii and iv.

[13] *Fu-to*, shortened into *Fu*, is properly the name under which *Sâkya* Muni is known in China and is a corruption of the word *Buddha* (Wen-hien-tung-kao, k. 227, f. 1). In Japan the term *Fu-to* has more especial reference to Buddhist convents and to the brethren who dwell in them, and who are known to Europeans as *Bonzes*.

[14] Lit. the power of *Ze-zai*. *Ze-zai* signifies that which exists *per se*, or absolutely, the independent one, the supreme one, the lord. Besides being the proper name of a deity belonging to the Buddhist Pantheon it is an honorific epithet of many Dêva and Bôdhisatva. The Chinese, and of course the Japanese, who have borrowed the expression from them, as well use *Ze-zai* to translate—but incorrectly—the Sanskrit word Isvara. The Chinese expression *Ze-zai* is, indeed, the exact rendering of the Sanskrit word *svayambhu* (from *svayam*, self, and bhû, to be), a generic name given by the Buddhist scriptures to certain deities; and which in the religious system of the Brahmans is bestowed upon *Brahma* himself and upon the two other deities of the supreme triad *Vishnu* and *Siva*.

[15] In this world; Jap. *shaba sekai*. *Shaba* is a corruption of the Sanskrit word *saha*, part of the compound *sahalôka*; *sekai* means *world* (lôka). *Shaba sekai* is rendered by the Chinese and Japanese as *The world of Extreme suffering*, which in the Buddhist cosmogony is that which is the abode of men and of all beings subject to transmigration.

[16] *Ubasoku* is derived from the Sanskrit *upâsaka*, fem. *upâsika*, the name given to the Buddhist laity, that is, to the faithful who make profession of their belief in the doctrines of *Sâkya* Muni but do not devote themeselves to a religious life.

The Chinese work intituled *Wen-hien-tung-kao*, k. 226, f. 2, r. says, "As to secular persons (i. e. persons not being members of the clergy) the men are called *Yeu-po-se (upâsaka)* and the women *Yeu-po-i (upâsika)*. All are bound to observe the five commandments following:—Thou shalt not kill; Thou shalt not rob; Thou shalt not commit fornication; Thou shalt not bear false witness; Thou shalt not drink wine."

[17] In Japanese *Seson*, *The Most Venerable one of the World*, corresponding with the Sanskrit *Lôkagyêstha*, an honorific title accorded to the Buddhas.

[18] The Dhârani are certain mystical formulæ or incantations, having the power, according to the Buddhists, of accomplishing prodigies of every kind. According to the doctrine of the Dhârani, which was a product of the later evolution of the religious system of *Sâkya* Muni, every thing, every being, every notion of being is expressed by means of special formulæ called in effect Dhârani.

The ceaseless repetition of these formulæ, and the contemplation of the characters with which they are written, confer an absolute power over the things or beings to which the magic sentences are respectively dedicated. There are incantations and formulæ for warding off epidemics, for guarding against the influences

of evil constellations and of evil demons; sentences which cause the rain, the wind or the storm to cease; which bring wealth and happiness, are able to call up Bôdhisatvas and so on. The Chinese and Japanese recite these Dhârani, transcribed after a barbarous fashion from the Sanskrit or Tibetan and reduced to an unintelligible jargon, as may be seen from the examples contained in the translation of this text. They are gabbled over, without being understood, a certain number of times; and to assist the reckoning, coronals or rosaries, such as are used in Europe, are employed.

[18] *Nafu-maku* seems to be a variation of the usual invocation *Namu*, in Chinese *Nanwu*, in Sanskrit *namah*. *San-man-da-bo-da* is perhaps a transcription of *Samata makha* or *Samanta Buddha*. *On*, for *om*, an abbreviation probably of *avam*, is, according to some, the mystic name of the deity, like *tad*. *So-fa-ka* is the Sanskrit word *svâha*, found at the end of prayers and of Dhârani with the meaning of our *Amen*.

[19] The Japanese word I have rendered 'temple' is *ga-ran*, abbreviation of *zan-ga-ran*, Chinese *San-kia-lan*, a corruption of the Sanskrit *Samghârâma*, explained in Chinese Buddhist dictionaries as *Chung yuen*, "the garden of the assembly," or as *sang-fan*, "the abode of priests." *Samghârâma* originally meant the park surrounding a monastery, but it came to designate the monastery itself and then to be a synonym of *Vihâra*.

[20] *Tenniyo* is the rendering of *Dêvi*, fem. of Dêva. These deities are also known as *apsara*.

[21] *Kanro*, "sweet dew," is the *Amrita*, "food of the gods," and is a symbol of divine grace. The word also signifies *immortality*, and has, too, the sense of Final Freedom according to Buddhist ideas. The water used in the baptismal rite of the Buddhists is likewise called *Kan-ro*. The ceremony consists in douching the neophyte and praying for the remission of his *san-go*, that is, of the sins committed before and during this life and of those which may be committed in a coming existence.

[22] *Sai-tsu*, known under the posthumous name of *Tengiyô daishi*, was of the family *Santsu*, which averred its descent from the Emperor Hien-ti (A. D. 190-220) of the eastern Han Dynasty. He was born the 18th day of the 8th month of the 1st year *Shin-go-kei-un* (767) and died in the 13th year of *Kô-nin* (832). In 804 he accompanied a Japanese embassy to China, where he visited the principal Buddhist temples and made some stay at the convent of *Kwo-zin-se*, situated on the mountain *Tien-tai-shan* in the *Tai-chen-fu* in the province of *Chekiang* in China. He took back with him, on his return to Japan, more than two hundred and thirty Buddhist texts which he had copied out with his own hand. During the rest of his life he dwelt on the mountain *Hiyeizan*. He introduced the Buddhist baptismal rite into Japan and founded the sect called *Tendai shiu*, which took its name from the above mentioned mountains *Tien-tai-shan* (see Klaproth, Nippon Ôdai Ichiran, page 95 v. 1; and the Shogenjigo, 4, 41, v. 3). The *Tendai*

sectaries call him also *San-ka no daishi*, "The Daishi of the lineage of the Mountain." He is said also to have introduced into Japan the other seven Buddhist sects known together with the *Tendai* sect as the eight *shiu*.

Daishi is a post of honour conferred by the emperor upon certain individuals chosen from among the priests or bonzes. (Shogenjigo, 3, 21, r. 1.—Hayabiki, 168 r. 7.)

[23] The mountain *Hiyeizan* is situated in the province of Ômi, in the district of *Shiga*. As to the celebrated convents of this mountain see *Dickson, Japan*, Edinburgh, 1869, page 146.

[24] *Nichiren Shônin* was a member of the *Mikuni* family (entered in the Shogenjigo 10, 46, v. 1). He adopted a religious life in the tenth month of the eighth year of *Bunyei* (1271) and died on the 13th day of the 10th month of the 15th year of *Kôan* (1282) at the age of 61. The Emperor *Godaigo* (1319-1331) bestowed upon him the honorific title of *Tai-Bosatsu* or Great Bôdhisatva (Shogenjigo 4, 4, v. 6). In the 7th month of the 1st year of the reign of *Kizan no In*, he established at Kamakura a new sect which bore his name and had numerous followers. *Shô-nin*, according to the Shogenjigo, is not the title of an office, but an honorific appellative conferred upon religious persons of high merit. (Shogenjigo 4, 50, r. 7.)

[25] This is a Chinese work, the complete title of which is *Nan-kai-ki kwei-nei-fa-chuen;* the passage cited by our author is to be found on fol. 48 of the 1st book of the work.

[26] *Shin-ô*, the King of the Spirits, or *Tai-shin-ô*, the Great King of the Spirits, is another name of *Daikoku*. The *Pei-wen-yun-fu*, k. 221 f. 147, says that King of the Spirits (*shin-ô*) is the name of one of the spirits who are provided with keys of gold, whose mission it is to protect places sacred to religion. *Bishamon* or *Vâisravana* is also one of the four *Tai-shin-ô* who keep guard over the temples.

[27] *Mahâdêva* is one of the names of *Siva* or Mahêsvara, the third personage of the Brahman Trimurti.

[28] *Trirotna* or *Ratnatraya*, lit. the Three Precious ones, *Buddha*, *Dharma* and *Samgha*. The Buddhist school of the Mahâyâna, under the influence of the old Indian Trinity, united the three constituent parts of the religious system, that is, Intelligence personified in Sâkya Muni, doctrine or law (Dharma) and the assembly of the faithful or the church (Samgha) and thus established the Buddhist Triad.

[29] In Japanese *Go-shiu*, "The Five aggregates," are the attributes which, according to the metaphysics of Buddhism, make up the human being, and these are: 1st, Form (*Rûpa*); 2nd, Perception (*Vêdanâ*); 3rd, Conscience (*Samjnâ*); 4th, Action (*Karma*); 5th, Knowledge (*Vijñâna*). These five attributes are called *Skanda*.

[30] These ceremonies consist in symbolical signs made with the fingers moved and disposed in various ways, and are called *Mudra*, in Japanese *In*. They frequently accompany the recitation of magic formulæ Dhârani or Tantra. The

mallet or hammer which Daikoku holds in one hand is called the Hammer of Happiness. Each time he gives a blow with it, the wallet he has by him becomes filled with money, rice and other things, according to what may be desired.

[31] *Ôanamuchi no mikoto*, father of *Kotoshironushi no mikoto*, was the son of *Susanô no mikoto*, the offspring of Izanagi and Izanami.

[32] The gods specially worshipped by the trading classes in Japan are: *Yebisu*, *Daikoku*, *Hotei* and *Toshitoku*. The first three are among the seven gods of Happiness; the last, known also as *Kurokushi*, is more specially worshipped at the new year, and is represented clad in an ample and flowing garment with long sleeves, and as having an abundant beard, large eyes and a fan in one hand.

[33] A section of the *Saddharma pundarika*. The whole of this work has been translated from the Sanskrit by Burnouf. (Le Lotus de la Bonne Loi 40. pp. 898. Paris 1852.)

[34] *Salvation*, in Japanese *toku-do*, "to attain the ford" or "to cross to the other shore". According to Buddhist ideas, after created beings have emerged from the Sea of Life and from Death, the shore or region where each must land is called 'the other shore' or 'yonder shore'; while the shore or region where man is subject to the changes of life and of transmigration is called 'the hither shore.' The means of getting across to the 'other shore' or to Nirvâna are called Pâramita and are six in number; but the sixth in especial, i. e. Pradjnâ or knowledge, more than any of the remainder has the power of facilitating the passage across Sânsâra or the world to the region of Nirvâna.

[35] *Ron*, in Chinese *Lun*, is a kind of Buddhist scriptures treating of philosophy, distinguished by the name of *Sâstra* and forming the third section of the Tripitaka (*Sûtra*, *Vinaya*, *Sâstra* or *Abhidharma*). The original title of the book *Tairon* may, perhaps, have been *Mahâsâstra*. The Shogenjigo, under the word *Bishamon*, repeats the very terms of our text, with a very slight variation toward the end of the passage, but quotes from the *Chitsu-ron*, Chinese *Shè-tsu-lun* (Prajnâ pâramitâ Sâstra?,) instead of from *Tairon*.

[36] *Yasha* and *Rasetsu*, *Yaksha* and *Râkshasa* are a sort of demons and monsters. The former are supposed to be the cause of falling stars and comets. The aborigines of Ceylon were called Râkshasa and were described as cannibals. The Chinese explain the name Râkshasa by *Shi-gin-kwei*, "Men-devouring demons."

[37] The original Sanskrit title of this work is *Suvarna prabhâsa râja nâma mahâ yâna sûtra*. The word *Kiyô* found appended to very many titles of Buddhist works is the Chinese word *King*, and denotes the scriptures belonging to the first division of the Triple Buddhist Canon (Tripitaka) and known under the name of *Sûtra*.

[38] *Sui-shô-san*, the Crystal Mountain, means the mountain Mêru situate in the northern region and consisting of masses of crystal. It is in this very region, north of Mount Mêru that Bishamon has his abode. (See below.)

[38] *Uga-shin-ô*, King of the Spirits Uga, is also called *Uga no Kami* "The Kami Uga;" *Uga no Mitama*, "the spirit Uga;" *Ukemochi no Kami*, "The Kami guardian of Food."

[40] See note 20 above.

[41] According to a Chinese Buddhist legend, *Pe-sse* (in Japanese Hakuja, 'the white snake') "was a woman whom Buddha changed into a white snake, that, under that form, she might expiate, during a succession of ages, the sins of her previous state of existence. After over a thousand years had gone by, Buddha decided that she should give birth to the star Wen-sing (the star presiding over literature); and for that purpose allowed her to resume a human form and to become the wife of Hanwen. When her pregnancy approached its term, a great light shone about the whole of the house where Pe-sse dwelt, and at last the star Wen-sing made its appearance. Pe-sse, however, had not ended the expiation of her sins, and Buddha therefore bade the priest Fohai bury her under a pagoda. Twenty years more passed by and Pe-sse, her punishment now ended, was received into the kingdom of the Dêva.

[42] *Rimbô* is a rayed wheel or circle supposed to possess extraordinary power. In the original Sanskrit this disk is called Chakra, and is the symbol of Chakravartî râja, the vanquisher of the universe.

[43] *Nioi jiu*, the pearl *niyoi;* this jewel is what in original Sanskrit texts is called *mani*. So great is the splendour attributed to it that the rays which are emitted from it on every side light up objects in its neighbourhood. *Mani* is generally translated 'pearl,' but it seems to be in reality a sort of precious stone resembling a carbuncle, the more so in that the Sanskrit word for 'pearl' is *muktâ*.

[44] *Ô-ji*, sons of the King Râjakumâra or Kumâra râja.

[45] Lit. an infinite quantity of gems belonging to the seven kinds of precious things, *Sapta ratna*, which are: gold, silver, lapis lazuli, crystal, cornelian, coral and ruby. In Buddhist books, however, are enumerated various categories of precious things which are always seven in number.

[46] Lit. as if they lay on the upper surface of the celestial baldachin or canopy.

[47] The gem *Mani*, the symbol of Buddha himself and of his doctrine.

[48] In Japanese *biyaku getsu*, 'the white moon.'

[49] 1st, Oryza; 2nd, Milium globosum; 3rd, Holcus sorghum; 4th, Triticum æstivum; 5th, Panicum verticillatum.

[50] *Kuwa-shô* means 'a Buddhist;' *Hotei* means 'a stuff wallet.'

[51] The Shogenjigo 4, 4, v. 5, says that Hotei called himself *Kei shi*, but that his contemporaries gave him the name of Chôkôshi.

[52] The places here mentioned are in China. *Hô kuwa*, in Chinese, *Fung-hoa*, is the name of a district and town of the 3rd class, in the department of *Ning po fu*, in Japanese *Nei fa; Shimei*, in Chinese *Se-ming-shan*, is a mountain in the same department of *Ning po* in the province of *Che-Kiang*.

[53] *Riyô* is the Japanese name of the *Liang* dynasty, that ruled over China A.D. 502 to A.D. 556. Here, however, is meant the dynasty of the *Heu-liang* or posterior *Liang*, who held sway from A.D. 907 to A.D. 921. *Teimei* is the name of the year 915, when the Emperor *Mo-ti* occupied the throne. The Shogenjigo 4, 4, v. 5, says that he died in the 3rd year of *Teimei* (Ching-ming) of the Emperor *Taizu* of the *Liang* dynasty. This is probably a chronological error. *Taizu* was the first of the dynasty of the later Liang and reigned from 907 to 913; while the name *Ching ming* denotes the year 915, the third of the reign of the Emperor *Mochi*, who was the successor of *Taizu*.

[54] *Passed away from this life.* The Japanese word *kesu* from *keshi*, 'to transform ourself,' in Chinese *hwa*, is a common expression in the Buddhist scriptures denoting the passage of a being from one state of existence to another. It is the translation of the original Sanskrit Anupapâdaka and Nirmânakaya. 'Hwa' is also used in Confucianist writings, but in a different sense, as we shall presently see.

[55] The author seems to mean that the people knew by the wallet that he who bore it was Hotei, under a shape different from his own; as Pythagoras, recognising the shield which he had carried at the Siege of Troy gave himself out as the Euphorbus of that age:

Habentque
Tartara Panthoiden, iterum Orco
Demissum; quamvis, clypeo Trojana refixo
Tempora testatus, nihil ultra
Nervos atque cutem morti concesserat atræ.

Horat. Od. 1.28 9-13.

The passage in the Japanese text may also, perhaps, be thus rendered:

'Next (after the death of Hotei) there being there men from a different part of the country who saw him go by with the Master's Wallet, the faithful vied with each other, etc.' But whatever be the degree of uncertainty in the original, the first version is more in conformity with the spirit of the text and more in accordance with the rules of Japanese syntax.

[56] 'All the faithful,' *Shishiu*, lit. the four assemblies, that is, all those who are comprised in the mass of each of the four classes into which the Buddhists are arranged. These are: 1st, Bikshu; 2nd, Bhikshuni; 3rd, Upâsakâ; 4th, Upâsikâ, or in other words, monks, nuns, laymen, laywomen.

[57] To transform or reform, in a moral sense, is the Confucianist meaning of *hwa*, of which expression we have spoken in note 54.

[58] The Shogenjigo 4, 4, v. 5, says that he is followed by a troop of fifteen children.

[59] *Inari*, called also *Uga*, is the God of the Rice-plant. See above under Ben-zai-ten, page 443.

[60] *Miyako*, capital city, seat of the court and residence of the Mikado.

MANUFACTURE OF SUGAR IN JAPAN.[1]

By K. Ota, Graduate of the University of Tôkiyô.

[*Read June 29, 1880.*]

Formerly all the sugar used in Japan was imported, chiefly from China and Holland. It was first cultivated in Riu Kiu, from which place it was introduced into Satsuma. During the years Kiô-hô and Hôreki the government ordered it to be cultivated in the provinces of Musashi and Suruga, but without success. Afterwards a native of Kii, one Yasuda Yûtaka, became acquainted with the Dutch method of growing the cane, and finding the climate of his own province suited to this, he commenced to grow it, and finally succeeded in producing two kinds of sugar, black and white, which the natives of that province paid as tribute to the government. The method was, however, kept secret. In the year of Kansei (about 1797) the government sent Kimura Matasuke to Kii to learn from Yasuda how to make sugar. He devoted himself to the study of the process, comparing it with the Chinese method, and finally published a book on the subject. At the present time the chief sugar producing places are Satsuma, Ômi, Hiuga, Higo, Hizen, Riu Kiu, Hôki, Bizen, Suwô, Tôtômi, Suruga, Idzumi, Sanuki, Awa, Owari, Chôshiu, etc. Of these, Idzumi, Sanuki and Satsuma are the most important.

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[1] Being the substance of a thesis presented on graduating, June, 1879. By permission of the Director of the University.

The sugar cane is a plant of the grass species known here as *kansha*. It contains juice amounting to about 90 %, of which 74 % is water. The mineral matter also amounts to about 0.47 %, the greater part of which consists of silica and potash, as will be seen from the following analysis:

ASH OF SUGAR CANE.

Silica	50.86 %
P_2O_5	7.12 "
SO_3	4.04 "
Cl	1.05 "
CaO	4.16 "
MgO	6.85 "
K_2O	25.07 "
Na_2O	2.12 "
	100.27 %

It grows to a height of seven or nine feet, with a diameter of an inch or less. It resembles the bamboo, having knots or joints about two or three inches apart at the lower part of the stem, widening out above.

There are three kinds of sugar plant, described—

(1) Teki-shô;
(2) Tô-shô;
(3) Kô-shô.

(1) gives the best sugar. (2) comes from Riu Kiu and was introduced first into Satsuma, afterwards to Kiôto, thence to Idzumi and Yamato. This supplies the largest amount of sugar grown in Japan. (3) From this no sugar is obtained: it is eaten or chewed directly on account of its sweet taste.

The mode of cultivating the cane in Sanuki may be taken as a type.

The sandy and almost sterile soil where no other crops can be raised is best fitted for the cultivation of the sugar cane; always along the south-east sea-coast, and never in the interior, as it requires a warm climate. The soil, being sandy, is always dry,—a condition necessary

for the proper growth of the cane. The cane is propagated by cuttings. For this propose, when it reaches maturity, about the beginning of December, the best stalks are selected, and are cut down close to the ground. They are then dressed, or freed from leaves, and part of the tops cut off for eight or ten inches. These cuttings are then put into a pit dug in the ground, in alternate layers with sand. The pit is then filled up with sand to about one foot from the surface of the ground. Over this a roof is constructed to prevent rain getting access and to keep out frost. The pit is generally made on the southern side of the house, so as to receive as much sun as possible. In this way the cuttings are preserved until the following spring, and in March, when they are taken out, a bud is found shooting out from each joint for about one-half inch. The cane is now cut into small pieces, each with one or two joints, and they are then taken to the farm to be planted.

The land must have been well ploughed and furrowed at distances of about three feet from each other. Each ridge is slightly watered, and the cuttings are then planted close to one another. The buds must always be directed sideways, the roots formed being much stronger in that case.

About three *to* (nearly 1½ bushel) of powdered *hoshika* (fish manure) are added to one *tan* (0.245 acre) of ground, and after about six weeks the shoots grow to a height of about two or three inches. At this time a fresh quantity of *hoshika* is used, amounting to five or six *to*, or if it is very dear, rape cake is used instead. In the latter part of June, when the cane has grown to a height of three or four feet, the last supply of manure, one *koku* (4.96 bushels) of *hoshika* is given. After this the cane is left to itself without further treatment until the beginning of December, by which time it has reached the full height of eight or nine feet. The best canes are now selected for next year's growth, for if left longer the frosts would have an injurious effect upon them. The full development of sugar in the juice, however, does not occur until the latter part of December, and is indicated by the upper leaves turning yellow. The canes are then cut down to the ground, tied into bundles, and carried to the barn, where the leaves and the upper parts for about six or seven inches are stripped off. The canes thus prepared are ready to be taken to the press.

PRESS.

This consists of a set of three vertical rollers made of stone, one foot high and two feet in diameter. They are set in a framework of wood, which is firmly fixed on the level surface of the ground by driving in poles on the lowest plank of the frame. The upper surface of the base is cut with grooves, so that the juice flows along them into a gutter at the side, which conducts it to a vessel placed below. To the upper part of each stone cylinder a toothed wheel of a hard wood, generally *kashi* (oak), is attached, the centre one gearing into the two side ones. The axis of the middle wheel rises about two feet above the wooden frame, and to the top of it a horizontal arm about 15 feet long is fixed. An ox is yoked to this, and as it goes round it turns the cylinders. The two side cylinders rotate in the same direction and in the opposite direction to the centre one. The distance between each of the two rollers may be regulated by means of wedges, which are driven horizontally through the upper part of the frame and press against the axis of each of the side rollers.

A horizontal mill is sometimes, though rarely, used, and only when small quantities of cane are to be dealt with. In working with the vertical mill, one man sits on each side, so that one may introduce the canes between the two rollers on one side, whilst the other passes them back again through the other two rollers. This operation is repeated until 800 *kuwamme* of fresh cane have been twice passed between the rollers, which requires about five hours. The distance between the rollers is now diminished by moving the wedges, and the operation is again commenced with the canes which have already been passed through twice. As they have been crushed, it becomes difficult to feed them by hand, so a kind of gutter is used, which is directed between each of the two rollers, and into this the crushed canes are put; in this way they are twice more subjected to the action of the press. After this, though they still contain a little juice, it is not useful to repeat the pressing, so the canes are dried in the sun and used as fuel.

The expressed juice flows along the gutter and then collects in the vessel below until about one *koku* is obtained, which requires about

2½ hours, after which it is transferred to the clarifying pan. It has a dirty yellow colour, and is mixed with sand and small pieces of cane.

In this way 800 *kuwamme* of sugar cane are finished in one day, and yield about four *koku* of juice. Two men to feed the mill, two oxen and two drivers are required. The work is commenced early in the morning and is finished about 6 p. m. But where very much cane has to be treated they work till near midnight, the wages of the workmen being then proportionately increased.

CLARIFICATION AND CONCENTRATION.

This is carried out in a cast-iron pan of a conical shape, 20 inches deep, 2½ feet in diameter at the mouth, and capable of holding 1.04 *koku*. The mouth is provided with a flange 1½ inch wide, by which it rests upon the wall of the furnace, so that the whole body of the pan is within the wall of the fire-place. The fire-place is always about four feet below the level of the ground, and the mouth of the pan is raised about one foot above the ground, to render the operations of stirring and skimming easier.

In each refinery three pans are arranged in one row, each heated by a separate fire; one of these serves as a clarifier, the other two for concentration. Over each pan is placed a bottomless tub 12 inches high, and of the same internal diameter as the mouth of the pan. The use of this is to prevent loss when the juice froths or spirts during the boiling and stirring.

One *koku* of the expressed juice is introduced into the No 1 pan, with an addition of 3-5 *gô* (1 *gô*=180.4c.c.) of lime. The fire is then lighted, and as the liquid becomes heated the coagulated matter rises to the surface, and is constantly removed by skimming. The ladle used for this purpose is 7 inches in diameter, 3 inches deep, and is provided with a long handle. The bottom is formed of a horse-hair network, which permits the liquid to pass through easily. After about one hour's boiling, the formation of the thick scum ceases, the fire is extinguished, and the liquid is filtered through a cotton cloth into the settling tub. This is two feet high, and one foot seven

inches in diameter, provided with two taps at different levels. The liquid is allowed to stand about 30 minutes, and when all the sediment has settled down, the liquid is allowed to flow out of the upper tap into pan No 2. The fire is lighted, and the boiling continued with occasional stirring, the scum being removed from time to time. The bottom of the ladle used in this case is formed of silk. The boiling is continued for nearly one hour, with more frequent stirring as the liquid becomes thicker and thicker, after which it is transferred to No 8 pan. The fire under this pan must be watched with care, so that the flame may play around the bottom as uniformly as possible. The stirring is done briskly. This operation lasts from 30 to 50 minutes, and when the proper degree of concentration is attained, which the workman ascertains by taking a portion of the syrup on the end of the rod and dropping into water when it should solidify, the fire is at once extinguished, and the syrup is removed to another pan, in which it is allowed to cool and crystallize for one night.

The sugar thus obtained still retains some molasses and about 10 % water, and is called *shiro-shita*, or the basis of white sugar. It looks like white sand mixed with dark brown gummy matters.

REFINING.

This operation consists in separating the crystalline sugar from the *mitsu* or molasses, which is effected by pressure in cotton bags. The press used is almost exactly the same as that used in filtering *sake*. Twenty-four or twenty-five *kin* of the crude sugar are put in the cotton bag, which is again wrapped up in another of very coarse stuff called *tafu*, and eight of these bags are piled up in the press, with boards between each layer to equalize the pressure. Heavy weights are then hung on to the end of the lever, and the whole is left for one night. After 12 or 15 hours the weights are removed and the contents of all the bags are tapped out into a shallow tub about six inches deep, with a diameter of three or four feet. It is sometimes square and of the same depth. In this tub the sugar is kneaded by hand, a little water is sprinkled over it, and afterwards it is again submitted to pressure, this operation being repeated from two to five times, according to the quality

THIRD QUALITY.—SUBJECTED TO FILTRATION TWICE.

	1	2	3	4
	Shiro-shita....	Once filtered...	Twice filtered..	Mitsu .....
	%	%	%	%
Cane sugar	70.46	76.78	82.79	36.49
Invert "	17.52	13.59	10.51	30.98
Ash.....	2.05	1.90	1.13	3.80
Moisture	9.40	6.39	5.28	26.90
	99.43	98.66	99.71	98.17

From these analyses it will be observed that the *shiro-shita*, even of the best quality of sugar from Suruga, contains not more than 77 % of crystallizable sugar, whereas that of Sanuki contains as much as 80 %, and in the sugar of the third quality from Suruga, as sent into the market, there is very little more pure cane sugar than is contained in the *shiro-shita* from Sanuki.

The yield is as follows: The amount of cane worked up in one day is 800 *kuwamme*, from which 23 *kuwamme* of crude sugar are obtained. From this 9.2 *kuwamme* of *sambon* (refined sugar) are obtained, and 13.8 *kuwamme* of *mitsu* (molasses). The value of the sugar thus produced will be :—

9.2 *kuwamme* of *sambon*..... *Yen* 10.00
13.8 do. of *mitsu* ..... " 8.00

From 1 *tan* (.245 acre) of ground the average produce is 1200 *kuwamme* of cane, so that the value of the sugar produced will be 4X13=52 *yen* per *tan*. Against this must be set the following items.

For finishing 300 *kuwamme* (2484.5 lbs.) in one day the workmen required are as follows :

Two *kama ya* (to attend to the pans); one *seihonin* (to look after the pressing), each paid 20 *sen* a day and food. Also two *hitaki* (stokers) who receive each 15 *sen* a day; two cows and two drivers, 24 *sen* a day

for each man with his beast. Also two labourers to feed the mill, who receive 12 *sen* each. Altogether nine workmen and two beasts are employed, making the total wages per day *Yen* 1.62 exclusive of food. Besides this about *Yen* 1.50 worth of fuel is burnt each day to concentrate the juice, therefore the total expense for the 1200 *kuwamme* of cane will be 4X(1.62+1.50)=*Yen* 12.48. The farmer has also to pay at least *Yen* 10 per *tan* for *hoshika* (fish manure), and if he has to buy the young plants, this will cost in addition *Yen* 1.50 per *tan*, and the ground tax amounts to *Yen* 1.00 or more. The total expenditure is therefore,—

Labour, fuel, etc.....	*Yen*	12.48	per *tan*
Manure	"	10.00	" "
Ground tax	"	1.00	" "
Young plants	"	1.50	" "
	Yen	24.98	

which leaves a profit of *Yen* 27.02, and of course includes the wages of himself and family.

The above is a fair estimate of the profit obtained in places where sugar of good quality is produced, but in districts where only black sugar is obtained, the profit will not be more than 10 or 15 *yen* per *tan*. In Sanuki from one *tan* of ground the same amount of *shiro-shita*, i. e. 92 *kuwamme*, is obtained, amounting to 7.66 % of the weight of the cane. From this 26 *kuwamme* of *sambon*, or 8.06 % of the cane, are obtained, whilst the remaining 4.60 % of *mitsu* (molasses) is sold at a low rate. This, however, contains about 40 % of crystallizable sugar, part of which is obtained by further concentration, when the price of sugar is sufficiently high to pay for the extra expense of working.

The large amount of invert sugar contained in the molasses (26 to 31 %) seems for the most part to be produced during the process of concentration, as the concentrating pan is exposed to the direct action of the fire, and as at the end of the operation, when the liquid has become very thick, the temperature must rise very high, the result must be the conversion of a considerable amount of the cane sugar into invert sugar. If it were possible to introduce vacuum pans, much of the loss might be prevented. As regards the pressing mill, its action is pretty effective,

the pressure being such that after four times pressing the crushed cane is nearly dry. Part of the cane, however, finds its way into the juice, and may set up a slight fermentation; but as the operations are carried out during the coldest season of the year, and as the juice is not allowed to stand more than two hours, the loss from this cause cannot be very great.

As the operations are usually on a small scale, the advantages of these rollers or mills are obvious. In the first place they can be set up easily at the most convenient places, and can be very easily cleaned, as the rollers can be taken apart very readily. They do not require much exertion, the work of one ox being sufficient. The principal disadvantage consists in the trouble of feeding them with cane, for which purpose two men are employed.

Although the process of refining is not scientific, nor by any means a perfect process, still it has some advantages, as it dispenses with the necessity for much labour, and various expenses involved in the European system of sugar refining. There is a certain amount of crystallizable sugar lost, besides which the refined sugar does not contain more than 98.5 % of cane sugar, the rest consisting of moisture, ash, and a small amount of invert sugar. By using foreign methods of refining, perfectly pure loaf-sugar might, undoubtedly, be obtained, but such methods are evidently inapplicable in this country, where every farmer has to harvest his own ground, and operations must necessarily be on a small scale. Improvements cannot, therefore, be introduced unless the farmers could sell their raw sugar to some large establishment in some large town, such as Tôkiyô, where the foreign method of sugar refining could be adopted.

INFLUENCE OF CHINESE DIALECTS ON THE JAPANESE PRONUNCIATION OF THE CHINESE PART OF THE JAPANESE LANGUAGE.

By J. Edkins, D. D.

[*Read June 29, 1880.*]

1. In reading the Gospel of Mark in Japanese by Dr. Hepburn I was struck with the pronunciation of 洗 *si*, to wash. It is *sen*. In the city of Sung Kiang, near Shanghai, this character is called *sien*. This also is the old pronunciation, as may be seen in Kang hi and in the Japanese dictionaries. Sung Kiang is only thirty miles from Shanghai. In Shanghai, however, the final *n* is unknown in this word. The Japanese dictionaries give both *sen* and *se* as the sound, but *sen* is the more common. The *Kan on* is *se* or *sai* while the *Go on* is *sen*. But the *Go on* is the dialect of the Wu kingdom, apparently called Ngo or Go, and Sung Kiang is in the country formerly embraced in the Wu kingdom.

2. The Japanese have no theory respecting changes in the Chinese language, and from them we only know certain dates (not altogether trustworthy, as Mr. Satow has pointed out) of the introduction of Chinese sounds, and some few particulars respecting persons and places concerned. In the treatise 顯承述畧 Gen-Shiyou Zhiyutsu-riyaku,[1] a new work on foreign intercourse with Japan, the date of Wang jen, the

[1] See chapter 8, page 15, and chapter 9, page 7, 8. Wani is here said to have taught the *Kan on*. (Page 7.) The *Go on* was taught on Tsusima by the nun Hofu-miyau (A.D. 655) also of Pak tse. She made the *Go on* popular, and this rendered it necessary in A.D. 730 to issue the edict in favour of the *Kan on*.

first teacher the Japanese had, is given as A.D. 285. This is the fifth year after the last king of the Wu kingdom had submitted to the T'sin empire. The Wu kingdom had its capital at Nanking, and it was there that, some forty years before, Sun Kiuen had received a native of the Roman empire who called himself T'sin lun (Djin lon). The capital of the T'sin dynasty was first at Lo yang in Honan, and afterwards at Chang-an in Shensi. Wang jen is said to have been descended from the founder of the Han dynasty, Lieu Pang. Wang jen's grandfather went, says the account, from China to reside in Korea, in the kingdom then called Pe tsi (Pak tse). The Chinese dialect he made use of would naturally be that of Honan and Shan si, yet Lieu Pang himself B.C. 195 belonged to the Wu kingdom.

8. The Japanese say that Wang jen taught the pronunciation they call the *Kan on*, and that the *Kan on* dates in the first place from his time. In A.D. 780, before the time of Kou-bofu Dai-shi, who introduced the *hiragana* native characters, it was found that it was necessary to have the official language uniform throughout Japan. The interests of the public service required this. It was decreed that Chinese should be taught with this object, and that teachers should be everywhere appointed. They were called "Tongue men" 舌人 *Zetsu-zhin*. Four names are mentioned, apparently of Japanese origin, of teachers commissioned to act in execution of this decree. They instructed pupils in Chinese.

4. Six years later a Brahman from southern India is mentioned as arriving in Japan. He is called Bodhi. He was accompanied by a Cambodian named Buddha tetsu 佛哲. They came by way of China. Since it is not mentioned that they came from Korea, they would, it is likely, go by the route that Kou-bofu afterwards took from Central China. Kou-bofu, as the romance of his life recently published states, went from Ning po (明州 Ming Cheu) to Tsukushi.[1] This romance is called Kou-bofu Dai-shi Go ichi-dai san-gi. The author is Kan-kuu, a priest of the Hofu-kai-zhi temple in Kiyau-to. A romance is of no authority, but it indicates what the author of this historical novel, writing A.D. 1838, thought was the route he took, and he may have had documents on which to found the statement. That Ningpo continued to be the

[1] Tsukushi was either the whole island of Kiu-shiu or the province subsequently divided into Chikuzen and Chikugo.

chief port for north China for several centuries later is shown by the circumstance that in A.D. 1122 the Chinese ambassador to Korea, proceeding from Pien liang on the Yellow river in the first instance, went from Ningpo in a fleet of eight vessels. The historian of the expedition mentions the use of the mariner's compass, the oldest known record of its employment in the literature of any country, so far as I am aware. The Wu country, which gives its name to the *Go on* of Japan, extended to the south from Nanking and Sucheu, so as to include all the Chinese colonies on the south-eastern sea-board. The dialect would be homogeneous, it is likely, all the way from Nanking to Fucheu, which is mentioned by the Kiyau-to novelist as the port to which Kou-bofu Dai-shi was carried by a violent wind on his voyage to China. Ming cheu (Ningpo) was the chief port and Fucheu the next in importance. The junks of that time, when Tsung ming had still not risen out of the waters, would fear the vast sandbanks hidden under the muddy waters of the Yang tsī, and would prefer the Chusan archipelago, where the path to and from their harbour is easily traced among the islands. Later on, when the Ning po river became shallow, Kanp'u and Chapoo became the ports for Japanese trade. The elevation of Tsung ming, and the consequent formation of the north and south channels in its vicinity, opened the way for Shanghai becoming a port; and at the same time, by the elevation of the sea bottom, Chapoo lost its trade through the increasing shallowness of its anchorage. All this bears on the question of the dialect intended by the *Go on*.

5. A large number of words in the *Go on* commencing with *w*, *y*, *e*, etc., have *h* in the mandarin dialect. Such are 和 *wa (Kan on kuwa)*, 囘 *we (kuwai)*, 或 *waku (koku)*, 惑 *waku (koku)*, 黃 *wau (kuwau)*, 慧 *we (kei)*, 獲 *waku (kuwaku)*. This last word the Chinese tonic dictionaries give with the weak aspirate as the initial, as in 胡 *hu*, where the *h* is scarcely heard in the old middle dialect. The Japanese 玉篇 *Giyoku-hen* gives the initial as that of 爲 *wei*, which never had an aspirate in the Chinese tonic dictionaries.

There are some others, as 懷 *we (kuwai)*, 話 *wa (kuwai)*, 皇 *wau (kuwau)*.

The *Go on* sounds have been in disrepute as compared with the *Kan on*. The literati have favoured the *Kan on* as not being Buddhist.

Hence in the 玉篇 *Giyoku-hen* the *Go on* is rarely given. When it is given it is because it has forced itself into notice by its own persistence in the case of certain common words like these here given.

All these words belong to the lower series, which consists of words with sonant initials. In this series the weak aspirate is correlate to *g*, *d* and *b*, as in the upper series the strong aspirate is correlate to *k*, *t*, *p*.

Only the *Kan on* sound is given in my authority *(Giyoku-hen)* in such words as 洪 *kou*, 縣 *ken*, 綰 *kuwan*, 戶 *ko*. These ought to have the *nigori* and be pronounced with the initial g. Or they should have dropped the aspirate, as may be shown was sometimes formerly the case with the Woo dialect of ancient China.

In looking over the Amoy dictionaries of Medhurst and Douglas I find the following instances where the *h* is dropped in words of the lower series 話, 畫 園, 紅, 後 湖 護 黃. These are in Shanghai *wo*, *wo*, *yuen*, *h*ung (very weak h, often entirely lost), *h*en, *h*u, yan (very weak *n*), wang. In Amoy colloquial they are *oe*, *wa*, *hung*, *ang*, *au*, *oe*, *eng*, *ng*. In the reading sounds of Amoy they are *hwa*, *hwa*, *wan*, *hang*, *hō* (as *aw* in saw), *hō*, *an*, *hong*. This peculiarity of the old Woo dialect may be thus seen to be preserved partially in the colloquial, and in the reading sounds. The same words are in Canton *wa*, *wa*, *wen*, *hung*, *hau*, *wu*, *han*, *wong*. The old Woo dialect continued then all the way to Canton, if other points of resemblance can be found.

6. The question then which now shapes itself before our minds is as to whether the *Go on* of Japan is the dialect of South China from the river Yang-tsze to Canton, and the *Kan on* the north dialect of China particularly as spoken in the old capitals, Loyang and Chang-an.

I incline to the view that the northern and southern dialects of old China were not distinguished by any such great variations as exist at present, and that so far as the *Go on* and *Kan on* of Japan differ from each other, they represent with considerable accuracy the amount and nature of the variations.

Taking the omission of the aspirate in words of the sonant series as a test, we find at once by consulting the Korean transcription that the pronunciation registered with the Korean alphabet belongs to the *Kan on*, for the words which in Southern China lose *h* keep it in Korean reading. As there was formerly much intercourse by sea between Korea

and Ningpo, we must suppose that Buddhism, which formerly flourished so greatly in Chekiang and Kiangsu, must have had a certain effect on the Korean pronunciation of words used by the Buddhists. Since that time the Confucian spirit in Korea has risen to the point of bigotry, and Buddhism has enjoyed little favour. In the public edicts against the Roman Catholic religion promulgated in Korea, one great fault pointed at with vigorous condemnation has been its alleged likeness to Buddhism. The peculiar pronunciation taught by the Buddhists in Korea would not therefore be favoured by the literati, and it never gained the influence it had in Japan, where the government of the Shiyau-gun shewed on all occasions a warm admiration for the religion, books and ritual of Shakyamuni.

7. It is time to point out the other chief features of difference between the two prevalent Chinese orthographies preserved by the Japanese.

One of the most striking is *b* in the *Kan on* for *m* in the *Go on*. To account for this we must suppose that in Honan and Shensi a thousand years ago it was common to pronounce *m* like *b*, or construct a theory for the upgrowth in Japan itself of a faulty way of pronouncing *m*. The *Kan on* transcription has in most cases *b* for the *m* of the *Go on*. It is not so in all cases. In the History of the After *Han* dynasty[8] the Japanese name Yamato is spelt with 馬 *ma*.

The Syrian inscription erected 1,200 years ago in Changan uses 彌 for the word Messiah. This is G. *mi*, K. *bi*. The Sanskrit transcription is quite regular. *M* corresponds to *m* and *b* to *b*. The Korean transcription has also *m* for *m*. All these four authorities agree with the *Go on*. We conclude that the *Go on* sound also prevailed in north China, and that the *Kan on* variation has to support it in this instance only local peculiarities in certain parts of China, as in Fukien. The Amoy people have a very strongly marked *b* in most cases where *m* should occur. But there are no traces of this peculiarity in provinces farther North.

In Mongol *behe* occurs for the Chinese *mek*, "ink;" *bal* for the

[8] This work is of the 5th century. The name of the Empress Zhin-gou Kuwau-gu is given 倭姬命 Pi me ko, which in the Japanese *Himego* "princess" for *Hime*.

Chinese *mit*, "honey;" Abida for Amida, the name of a Buddhist divinity. These are all the examples I can find. They indicate a fondness for *b* in preference to *m*, and nothing more. They do not prove that the old Chinese pronunciation also preferred *b* to *m*. We must follow the dictionaries and the Chinese, Syrian, Sanskrit and Korean evidence already given.

In the Amoy and Tiechiu pronunciation of words beginning in *m*, the usurping *b* resigns its position when a nasal final occurs. This seems to indicate that the original sound was *m*.

8. Thus we are reduced to the alternative that the *Kan on* peculiarity which consists in pronouncing *b* for *m* is probably of Japanese origin. This hypothesis seems on the face of it very unlikely. But what are we to do with the fact that the Chinese *m* represents Sanskrit *m* in the works of Hiuen Tsang, the famous Buddhist traveller? His translations were made about A.D. 650 in Shensi. Could they have failed to contain traces of this initial *b* for *m* if such a peculiarity had existed there at the time in the spoken tongue of the people? On the other hand *m* is a very favourite letter in the Japanese vocabulary, and is found both in the native stock of words and in the *Go on*. Thus *mata* "and" is the Mongol *basa*, "and." *Uma*, "horse" is the Mongol *morin*. *Amai*, "sweet," is the Mongol *amatai*. *Meshi*, "food," is *bada*. *Mi*, "body," is *biyi*, *beye*. *Motome*, "seek," is *bedere hu*. If this change of *m* to *b* was Chinese it has left behind it few traces. In these circumstances the question, what was the occasion of *b* being in the *Kan on* prominently used for *m* must on the whole be decided against the *Kan on*.

9. Another difference between the *Go on* and *Kan on* is in the preference of the former for a medial *ia* and of the latter for a medial *ei*. Thus 行 *hing* "to do," "walk" is in *G kiyau*, shortened into *Kiō*, and in *K kei*. In Shanghai it is *hang*, in Amoy *kiang* (this *ng* is nasalized). It should be here noticed that the *Go on* is older than the *Kan on*, just as at present the northern dialect is new while the southern dialects are old. The language has changed more and faster in North China than in south. When *ei* took the place of *ya* in the Japanese transcription, it was the register of a step in the process of change and it heralded a further change to *i*, the present medial vowel.

10. In the *Go on* the initial *n* corresponds to the Chinese *n*. In

Kan on it is sometimes changed to *d*. This it is difficult to find evidence for on Chinese ground. In Nanking *n* becomes *l*. The same is true in Hunan and in Fukien. The Japanese enunciate *l* or *r* often as if it were *d*. Have they themselves made the change from *n* to *r* and then from *r* to *d*? In the Chinese tonic dictionaries the letters *n* and *l* are kept well apart. So also the evidence from Sanskrit and Korean is in favour of the view that the initial *n* of north China was the same a thousand years ago that it is now.

We are driven then to the supposition that the *Go on* in writing *n* for the Chinese *n* is correct, and that the introduction in the *Kan on* of *d* in place of *n* is caused by Japanese habits of enunciation. The nearest approach to it that we can find in China is *l* for *n* in some modern dialects, and some of the teachers of Chinese who went to Japan to give instruction may have had this local peculiarity, which became exaggerated by their pupils through a tendency to change *l* to *d*. The result is seen in a Japanese initial *d* for the Chinese *n*. But the origin may be purely Japanese.

11. The change of *m* to *b* and *n* to *d* in the *Kan on* indicates weakness in the liquids and strength among the sonants. The want of power to separate *r* from *l* is another indication of the same thing, as also the tendency to change *r* into *d* which we find among some Japanese speakers.

12. The *Kan on* is more modern than the *Go on*. The orthography of the *Kan on* points to a certain progress made by the language between the third century and the seventh. Thus 石 "stone," which is now *shï*, was in the time of the *Go on zhiak*, and in that of the *Kan on zhek*. Just as at present the language of south China is older than that of the north in its idiotisms and pronunciation, so also in the early Christian centuries the *Go on* of south China was older in form than that of north China. But the language of the south was more like that of the north then than now. By the growth of mandarin and the decay of ages great differences have been introduced. In the ruined abbeys of England it is found that in one a gateway remains and in another the church, here the refectory and there a tower. So in China one part of the old language has been retained in the modern speech of the province and another part in that of another. Time has been busy destroying the old

language in all the provinces, but its most prominent peculiarities have been best kept in the middle and southern portions adjacent to the sea.[4]

13. The following examples will shew the nature of the changes made in the interval between the time of the *Kan on* and of the *Go on*, or, as it may be, the variety in the pronunciation of the northern and of the southern Chinese a thousand years ago. The history of the two pronunciations extended itself over several centuries, and it was the work of many persons to establish them in Japan.

LETTER CHANGES.	GO ON.	KAN ON.	MANDARIN.	OLD SOUND.
a to *o* ..... 買	*ka*	*ko*	*ku*	*ka*
u to *iu*..... 九	*ku*	*kiu*	*kieu, chieu*	*ku*
i to *iu*..... 龍	*riyuu (ng)*	*riyou (ng)*	*lung*	*ling*
e to *a* ..... 間	*ken*	*kan*	*kien, chien*	*ken*
e to *a* ..... 下	*ge*	*ka*	*hia, chia*	*ge*
e to *ye* ... 員	*on*	*yen*	*yuen*	*on*
eu to *au* ... 刀	*teu*	*tau*	*tau*	*to*
o to *a* ..... 凡	*bon*	*ban*	*fan*	*bom*
o to *e* ..... 嚴	*gon*	*gen*	*yen*	*ngom*
e to *i* ..... 施	*se*	*si*	*shï*	*she*
o to *yu* ... 純	*ton*	*shiyun*	*c'hun*	*ton*
o to *u* ..... 父	*ho*	*fu*	*fu*	*bo*
a to *ia* ... 象	*zau*	*shiyau*	*siang*	*zang*
a to *o* ..... 或	*waku*	*koku*	*hwo*	*gak*
o to *i* ..... 音	*on*	*in*	*yin*	*om*
i to *a*..... 參	*shin*	*san*	*ts'an, shen*	*shim*
ia to *a*..... 加	*kia*	*ka*	*k'ie, c'hie*	*gia*
e to *oa* ... 懷	*ken*	*kuwan*	*hwan*	*hon*
n to *j* ..... 人	*nin*	*zhin*	*jen*	*nin*
ai to *ei* .... 妻	*sai*	*sei*	*ts'i, c'hi*	*t'sai*

In chronology the *Go on* precedes the *Kan on* and the *Kan on* the mandarin.

In geography the *Go on* is predominantly south and the *Kan on* predominantly north.

North China was first colonized and has had a much longer time then south China to develop the language. This accounts for the thorough changes that have taken place in north China.

[4] For the peculiarities of the dialects my grammar of the Mandarin Language and also that of the Shanghai dialect may be consulted.

14. The points where the *Go on* and *Kan on* are alike are much more numerous than the points where they differ. The following are examples.

OLD SOUND.	KAN, GO.	OLD SOUND.	KAN, GO.
tok	德 *toku*	*si*.....	思 *shi*
tai	對 *tai*	*dau*	道 *dau*
wang	王 *wau*	*djiu*.....	樹 *zhiyu*
t'en.....	天 *ten*	*pi*	悲 *hi*
am	闇 *an*	*on*	恩 *on*
ti.....	智 *chi*	*shet*.....	說 *setsu*
zen	善 *zen*	*chip*	執 *shifu, shiu*

15. In the restored old sounds we have the finals *k*, *t*, *p* witnessed to by the *Kan on* and the *Go on*. Formerly in Japan when ム *mu* was used for the modern ン *n* it was possible to represent the old final *m*; but not in distinction from the old final *n* except imperfectly. Hence in the 正信偈大意 *Shiyau-shin-ge tai-i*, a Buddhist work, a copy of which I have, though the final signs *mu* ム and *n* ン are both used, they are not employed with perfect regularity. *Mu* is used for final *m* of old Chinese in 73 cases correctly. Final *n* is used for the old Chinese final *m* in 23 cases. Final *m* is used for the old Chinese final *n* in 8 cases. Final *n* is used in writing the final *n* of the old Chinese in nearly 800 cases.

16. The result of this inquiry is that in the *Go on* the final *m* of Chinese was represented by the Japanese *mu* in three-fourths of the instances. The final *n* of Chinese was represented by *n* uniformly with few exceptions. The *Go on* at first aimed to retain the Chinese finals *m* and *n* in distinction from each other.

17. When I wrote my Mandarin Grammar 28 years ago I was only able to speak of the old Chinese language as continuing unbroken till the formation of the mandarin, without having data to speak distinctly of a northern and southern dialect. But it seems to me on the whole clear from the history and character of the *Kan on* and *Go on* that it is possible now to proceed further, and to divide the Chinese language as it was a thousand and fifteen hundred years ago into a north and south branch.

18. In restoring the old Chinese pronunciation, we have better help from the Japanese transcription than from any other source. We do not yet know the age of the Korean transcription, nor have we such good Korean dictionaries as we have Japanese. The Sanskrit words written in Chinese by the early Buddhist translators are much too limited in range to represent the full Chinese vocabulary. Whether the Koreans have a *Go on* as well as a *Kan on* we do not yet know.

19. What we now need is to have a vocabulary of Chinese words arranged both alphabetically and in the order of the tonic dictionaries. In such a vocabulary we need not only the Japanese sounds, but the restored Chinese old sounds. The Chinese *sh*, *chi*, *ts* and *s*, with all the aspirates, must be placed correctly where the Japanese confuse them. The final *tsu* and *chi* must be changed to a pure *t* in finals. The irregularity of the *nigori* must be rectified, and also of the final *m* and *n* in Buddhist works, such as the *Shiyau-shin-ge*.

20. A very useful practical result of inquiries into this subject would be an improved *Kan on* and *Go on* prepared and published with the Mikado's government authority, in which, for example, the final *ng* of Chinese should be restored. The Japanese can pronounce it extremely well now, though they could not do so, or thought they could not do so, many years ago. The very troublesome initial *d* for the Chinese *n* should be changed for *n*, and *b* to *m* wherever it can be shewn that the old Chinese pronunciation was not what the Japanese took it to be.

MINUTES OF MEETINGS.

Tôkiyô, October 14th, 1879.

A General Meeting was held at the Shôhei Kuwan, Seidô, Tôkiyô, on Tuesday, Oct. 14th, Dr. Divers, Vice-President for Tôkiyô, in the chair.

The minutes of the Annual Meeting, held on June 30th, were read and approved.

The Chairman referred to the great loss the Society had sustained in the departure from Japan of its President, the Rev. Dr. Syle, and informed the Society that at the last meeting of Council Dr. Syle had read a farewell address, which the Council determined should be read at the next General Meeting.

The Recording Secretary for Tôkiyô then read Dr. Syle's address, which was as follows:—

"GENTLEMEN:

"Allow me to claim your attention for a few moments, before commencing the business of this meeting. I feel reluctant to bid farewell to yourselves, as representing the Asiatic Society of Japan, without expressing the great interest I feel in your transactions, and my earnest desire that the prosperity of past years may be surpassed by the greater prosperity of years to come. During the brief existence of our organization we have passed though three successive experiences, which seem analogous to the ailments of childhood; and which, like them, are destined to be outgrown by native vigor of constitution. We were first attacked by a malarious influence from without—the ridicule which some would have us accept as a 'test of truth'—though it is not easy to understand in what sense it can be so considered. Our Society, however, survived the attack, and has been no further molested by those who seem to think everything in life—especially a learned society—is simply food for fun. Our next difficulty arose from the suspicion that we existed only in the interests of 'a clique'—though it was found very difficult to ascertain who constituted that clique;—what was its character and what its objects. After giving this matter a good deal of earnest, and I hope candid, consideration, I myself came to the conclusion that the charge was well founded; that there was not only one clique connected with the Society, but two; and that the one consisted of those who exerted themselves and did the best they could to make the Society's meetings interesting and profitable, and the other was composed of those whose energies took the form of fault-finding, but without any corresponding effort to improve that of which they

complained. I am happy to think that the latter soon exhibited symptoms of dissolution, while the former have continued to give evidence of a vigorous vitality. Our third embarrassment arose from an over-haste, in certain quarters, to have everything we did published to the world as quickly as possible, and in ways most calculated to ensure notoriety. It was found somewhat difficult to calm down the animation of some of our too zealous friends, and to convince them that to make present popularity a leading object of our society was not compatible with its true character as an association of scholarly gentlemen engaged in the calm and careful pursuit of knowledge connected with this quarter of the world, and especially with the country in which we have our 'local habitation' and from which we adopt our 'name.' The words 'Asiatic' and 'Japan' express, with convenient clearness, the general scope of our design and the special field of our investigations. This fact leads to the mention of the next embarrassment we encountered, namely, that of putting some limits to the fields of research into which, as a society, we were disposed to enter. It would have made our labors altogether too promiscuous if we had attempted to 'intermeddle with all knowledge'; and it was therefore—wisely, as we think—resolved to adhere to the limits indicated, as has been just remarked, by the very title borne by the society itself. That title was adopted, and has been adhered to, not without care and deliberation. We have refrained from affiliating ourselves with other societies having similar objects, for this reason among others:—that Japanese gentlemen—especially those who have become acquainted with our language and institutions, might be included among our members, and coöperate with us in the promotion of our common objects. We are glad to know that this result has been attained in part; and our hope is that, in each successive year, more and more Japanese names will be entered on our roll of membership. The last point we will mention, upon which some difficulty has been encountered, is the mistaken attempt made at one time to give the discussions which usually follow the reading of our papers, a somewhat belligerent character; to turn the floor of our society into a mere arena for debate. Happily, the general good sense and friendly feeling which has characterized our proceedings (for we think this may be claimed without presumption) prevented this incipient tendency from becoming a confirmed habit; and as we have never been troubled by the intrusion of passing politics or theological controversy—two things foreign to our objects, however important in themselves—we have happily preserved the harmony which should always characterize those who cherish mutual respect, while they unite for a common purpose—the increase and diffusion of useful knowledge, connected with our selected field. That field is one of peculiar interest in more ways than we will attempt to enumerate; and we are gratified and encouraged in attempting its cultivation by having as collaborators the excellent Asiatic Society of our German friends as well as the Japanese Geographical Society subsequently formed. The recent reception unitedly given by these three societies to Prof. Nordenskjöld and his energetic associates of the *Vega* was a happy culmination of our scientific

fellowship, and a pledge, I trust, of the continuance of our harmonious coöperation. That such coöperation may be continuous, we must not only steer clear of difficulties—such as those which have been referred to—but we must guide ourselves by the Pole Star of Truth—by which is meant a certified knowledge of the Reality of Things; and we must oppose ourselves resolutely to what might well be called a scientific heresy—one unhappily prevalent at the present time, and very deleterious in its effects, both immediate and remote. Our reference is to the notion—fostered by much of the misleading phraseology which is employed by some popular writers—that there can be, and is, conflict between various forms of truth, in the sense that one must subjugate the other. This is simply impossible; and the idea ought to be not merely discredited, but repelled as savoring of disloyalty to the majesty of truth itself, and as standing in the way of all real scientific advancement. No apology is offered for introducing this topic here. Indeed, it introduces—not to say intrudes—itself, by insidiously pervading the literature that aims to be considered philosophical, and forcing its bad phraseology upon the acceptance of scientific men, to the great detriment of that clearness and accuracy which are of the essence of all that can rightly claim the name of Science. Besides, unless we have the confidence that our efforts and investigations tend to the perfecting of that harmony of all true knowlege which is beautifully exemplified in the connection of the Physical Sciences, and which is destined to receive a still more beautiful elucidation in the harmonizing of *all* the sciences—historical, ethnological, intellectual, moral:—unless, I say, we can look forward to this magnificent consummation, our energies will be enfeebled, and we shall lack the animation and persistence which can only be found when the object presented to our view is both worthy and attainable. It is not, therefore, from any partial, transient, or local considerations that we are induced to lay stress on the scientific right-mindedness which refuses to entertain the thought that astronomy can contradict geology, or virtue conflict with knowledge, or anthropology subjugate morals. Adjustments must be effected, and proportions must be observed; but one truth cannot destroy or impair any other truth, and this axiom we shall do well to recognize and rely upon.

"Allow me now to make one or two practical suggestions with reference to the Society's future operations.

"First—The subject of tides and currents around the coasts of Japan has not yet received due attention, notwithstanding its great interest and practical importance. In our own Transactions will be found painful evidence of the great losses of life and property on these coasts which have resulted, in part, at least, from the imperfect state of our present knowledge as to the tides and currents which sweep around these shores in a very peculiar and remarkable manner. Let me commend to your attention the question as to how reliable observation can best be made and the results tabulated for use, both here and abroad, where information is greatly desired on this particular subject.

"2ndly—It would, I feel confident, be both agreeable and instructive, if the Society would take some pains to organize occasional excursions to localities of historic or physical interest within reach of this city. Such places at Kamakura, Enoshima, Meguro, Totsuka, Ôyama, might well receive attention in this way: they would reward the observing investigator by giving him an insight into Japan as it was, and as it is, such as can hardly be so well obtained in any other way. Any one who has visited, in this manner, such localities as Dartmoor, Galway or the Trossacks, not to speak of fields of historic and antiquarian interest, will need no argument to induce him to make similar excursions in these parts; and if, in addition to such inducements, we consider the felicitous fact that our Society brings together, in pleasant accord, the various classes which constitute the foreign element in this remote region of the world, we may see an additional reason in undertaking to give a pleasant variety to its arrangements,—such a variety as will enable its members to enjoy, amid the scenes of nature, the good companionship which has hitherto been confined to the committee room and the lecture hall."

It was announced that Prof. A. E. Nordenskjöld, of the Swedish Arctic Expedition, and the Rev. E. W. Syle, D. D., the retiring President, had been elected honorary members of the Society.

The Librarian laid upon the table a large number of exchanges and donations of books and pamphlets.

Professor R. W. Atkinson, B. Sc., read a paper entitled "Yatsugatake, Hakusan and Tateyama; Notes of a Summer Trip." A discussion followed, in which the Chairman and Messrs. Dixon, Marshall and Whitney took part.

The Chairman thanked Mr. Atkinson in the name of the Society for his communication, and the meeting was then adjourned.

Tôkiyô, Nov. 11th, 1879.

A General Meeting was held at the Shôhei Kuwan, Seidô, Tôkiyô, on Tuesday, November 11th, Dr. Divers, President, in the chair.

The minutes of the last meeting were read and approved.

The Recording Secretary for Tôkiyô stated that the Council had elected Edward Divers, Esq., M. D., formerly Vice-President for Tôkiyô, to the vacant office of President; also that William George Aston, Esq., had been elected Vice-President for Tôkiyô in the room of Dr. Divers. It was also announced that the Rev. Dr. Joseph Edkins, of Peking, had been elected an honorary member, and that Mr. Henry Gribble had been reëlected an ordinary member.

The Librarian reported the receipt of various exchanges and donations; amongst others, a copy of the Narrative of Perry's Expedition to Japan, presented by the Rev. J. L. Amerman.

Dr. H. Faulds contributed the following "Note on the Ningiyôseki of Nishiki-gawa, and laid some specimens on the table:—

NOTE ON THE NINGIYO-SEKI OF NISHIKI-GAWA.

The members of this Society may perhaps before have heard of certain little stone images of the gods which pious pilgrims are taught to believe grow spontaneously in a certain western river of Japan. If so, some may readily have supposed that the tradition referred to something analogous to the pearl-coated images of Buddha now so well known to residents in China, which are simply little castings which, when inserted between the shells of a living oyster, cover themselves with a secretion of pearl, as a bullet when embedded in the tissues of a living man has been known to coat itself with a membrane. Through the kindness of Mr. Katsura, a native of the district in which these *ishi-ningigô* are said to be produced, I am enabled to lay before the society a few particulars which I have gleaned respecting them. These 'images' are sold in neat little wooden boxes, the outsides of which are adorned with a coloured picture of the bridge and river where they are obtained. It is in Yamaguchi Ken, Suwô no Kuni (Bôshiu), on the Nishiki-gawa at Kin-tai-kiyô bridge. When opened the box becomes a shrine, with seven of these little objects arranged to represent the *Shichi Fuku-jin* or seven Japanese gods of happiness and prosperity, *Hotei*, *Fukurokuju*, *Benten*, *Bishamon*, *Yebisu*, *Daikoku* and *Jurôjin*.

The images are composed of minute water-worn fragments of pebble of different kinds; and there are generally two to four larger somewhat flattened wing-like ones placed on either side. They seem to be solid, and without any apparent opening, but it is not difficult to discern that the little stone which stands for the head of the tiny deity has been deftly stuck on with some kind of sacred glue by the enterprising speculators on the credulity of the peasants. On now comparing with these the natural unsophisticated object, several specimens of which are now shown, it may be observed that the little object is hollow, with a rounded opening above, and is lined with a soft, smooth and silky substance. It is in short the *case* of a larva living in a pebbly river's bed. By means of correspondence I have succeeded in getting a number of the larvæ,—which are cylindrical in shape, of a dull yellowish brown colour, with a curious pair of feet quite at the end of the abdomen. They are in greatest abundance in water of about one or two feet deep, above and below the bridge which has been mentioned, and are found often with heads protruding from the case crawling over large stones. They are said to appear about May and the larvæ leave their cases about October. They evidently belong, I think, to the *Phryganeidæ (Latreille)*, a branch of the *Neuroptera*.

The *Limnophilus flavicornis* (Fabr.) builds up of little shells a very similar dwelling. The eminent American entomologist Packard, in his 'Guide to the Study of Insects,' figures (608 *a*) a 'case' very much like those now before you.

They are found abundantly is Labrador, and he tells us that although he had not raised the imago, the larva was probably that of *Limnophilus subpunctulatus* (Zetterstadt). The case figured by him, however, though very much like those now shown by me, is relatively very much longer, the stones are proportionately smaller and more nearly uniform in size, and it lacks entirely the large wing-like fragment which form so characteristic a feature in most of the specimens from Nishiki-gawa. The purpose of these I cannot quite explain, unless they might perhaps serve to steady the larva-case in the water. These 'wings' are wanting or not well marked in only a very few of the specimens in my possession. The correspondent who collected the larvæ now shown cautiously expresses a doubt as to whether the larger ones are really the same insect in a more advanced stage, as at first appeared to him likely. His doubt is, I believe, fully justified. They are larvæ of a species of *Perla*. They are curiously marked on the dorsal surface, and possess two remarkably long caudal hairs. From their habit of hiding under little stones while on the watch for other insects on which they prey, one might readily but wrongly suppose them to be merely individuals of maturer development, but otherwise identical with those first described. The architectural habits of nearly this whole group are of extreme interest, and might furnish much fresh material for the comparative study of instinct.

Mr. W. G. Aston read a paper entitled "Note on a Proposed New Arrangement of the Korean Alphabet."

Mr. John Milne read a paper entitled "Prehistoric Remains from Hakodate and Otarunai, with General Remarks on the Stone Age of Japan." A discussion followed, in which the President and Messrs Faulds, Aston and Atkinson took part. Mr. Milne replied, and the meeting was then adjourned.

MINUTES OF MEETINGS.

Tôkiyô, Dec. 9th, 1879.

A General Meeting was held at the Shôheikuwan, Seidô, Tôkiyô, on Tuesday, December 9th, 1879, Dr. Divers, President, in the chair.

The minutes of last meeting were read and approved. The election of Mr. Robert Lilley as an ordinary member of the Society was announced.

The Librarian reported the receipt of various exchanges and donations; amongst others a complete set of the Journal of the American Oriental Society, for which the meeting voted thanks.

Mr. J. H. Gubbins read extracts from a paper entitled "Hidéyoshi and the Satsuma clan in the XVIth century." The President, Mr. Aston, and Mr. Cooper made a few remarks.

Mr. C. J. Tarring read a paper entitled "Land Provisions of the Taihô Riô." After some remarks from the president, the Rev. W. B. Wright, Mr. Aston, Dr. McCartee, and the author of the paper, the usual votes of thanks were awarded, and the meeting was adjourned.

Tôkiyô, Jan. 13th, 1880.

A General Meeting was held at the Shôheikuwan, Seidô, Tôkiyô, on Tuesday, January 13th, Dr. Divers, President, in the chair.

The minutes of last meeting were read and approved. The election of Mr. John Morris and of Mr. James Main Dixon as ordinary members was announced.

The Librarian reported the receipt of various exchanges and donations; amongst others a copy of Bancroft's "Native Races of the Pacific Coast," in 5 vols., presented by the late president, the Rev. Dr. Syle. The Society voted its thanks.

Dr. Faulds said that he had visited the Institution for the Blind, recently erected in Tsukiji, and that there were in it two rooms well adapted for public meetings, one of which, he suggested, might be used by the Society.

The introduction to a paper entitled "A Catalogue of the Birds of Japan," by Captain Blakiston and H. Pryer, Esq., was read by the Corresponding Secretary in the absence of the authors, and the catalogue was laid on the table.

A paper "On the Japanese letters *chi* and *tsu*," by the Rev. Dr. Edkins, corresponding member of the Society, was read by Mr. Dallas, in the absence of the author, and a "Reply" to the same paper was read by E. Satow, Esq. Some discussion ensued as to the desirability of allowing any member who might desire

it an opportunity of reading beforehand any paper about to be read before the Society, and the President observed that the Secretaries would give any member of the Society this facility if he chose to request it, and if it was in their power.

Owing to the lateness of the hour a paper by F. V. Dickins, Esq., which formed part of the programme, was postponed to a future meeting. The meeting was then adjourned.

Tôkiyô, Feb. 10th, 1880.

A General Meeting was held at the Shôheikuwan, Seidô, Tôkiyô, on Tuesday, February 10th, Dr. Divers, President, in the chair.

The minutes of the last General Meeting were read and approved.

The elections of Captain E. Wilson Haswell as an ordinary member, and of Mr. J. B. Coughtric, of Hong Kong, as a non-resident member, were announced.

The Corresponding Secretary read a letter from the Rev. Dr. Syle, of which the following is an extract:—

"New York, Jan. 7th, 1880.

"My Dear Mr. Satow:

"In the course of the journeyings which have occupied me since my return to this country, I have visited Washington and Philadelphia, and have not omitted to avail myself of opportunities for advancing the objects of our society, by endeavouring to bring ourselves more fully *en rapport* with other associations of a similar character.

"And here, allow me to ask that you will return the Council my best thanks for the kind manner in which they have mentioned my past services, and have made me an honorary member.

"At Washington I had interviews with Gen. Myers (of the Signal Bureau), and with others, on the subject of tide observations on the coast of Japan. I expect that the Japanese Hydrographical Bureau or else Admiral Enomoto will receive some communication on this subject, either through the Japanese Legation, or otherwise. . . . . "

The Librarian reported the receipt of various exchanges and donations, for which votes of thanks were accorded.

Professor Atkinson communicated a "Note of analyses of Japanese clays."

Mr. William Bramsen read a paper on "Japanese Chronology and Calendars,"[1] which elicited some discussion. The usual votes of thanks were passed and the meeting was adjourned.

Tôkiyô, March 9th, 1880.

A General Meeting was held at the Shôheikuwan, Seidô, Tôkiyô, on Tuesday, March 9th, 1880, Dr. Divers, President, in the chair.

The minutes of last meeting were read and approved.

The election of Dr. David Brauns and of Mr. A. W. Thompson as ordinary members was announced.

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[1] At Mr. Bramsen's desire, this paper is not printed in the Society's Transactions, it being his intention to publish it independently.

The Librarian laid a number of donations and exchanges of periodicals on the table.

Mr. B. H. Chamberlain read a paper entitled "A Short Mémoir from the XVIIth Century."

Mr. Dallas, in the absence of the author, read a paper by Mr. F. V. Dickins "On the Kana Transliteration System."

Some discussion followed the reading of the papers, and votes of thanks were passed to the authors, and to Mr. Dallas.

Mr. Bramsen gave notice that at the next General Meeting he would bring forward the following motion:—"That three members of the Council and three ordinary members of the society be chosen by this meeting to form a committee whose duty it shall be to consider what measures can be taken to secure unformity in the transliteration of Japanese words in the Society's Transactions; and that the result of their deliberations, in the form of some rule, be laid before a General Meeting for adoption."

The meeting was then adjourned.

MINUTES OF MEETINGS.

Tōkiyō, April 13th, 1880.

A General Meeting was held at the Shō hei Kuwan, Seidō, Tōkiyō, on Tuesday, April 13, 1880, Dr. Divers, President, in the chair.

The minutes of last meeting were read and approved.

The Recording Secretary for Tōkiyō reported that Mr. Marion M. Scott had been elected a member of Council to fill the vacancy caused by Dr. Anderson's departure from Japan.

The Librarian reported the receipt of various presents, a list of which is appended. Thanks were ordered.

Mr. Bramsen moved, "That three members of the Council and three ordinary members of the Society shall be chosen by this meeting to form a Committee, whose duty it shall be to consider what measures can be taken to secure uniformity in the transliteration of Japanese words in the Society's Transactions; and that the result of their deliberations, in the form of some rule, be placed before a general meeting for adoption."

The Rev. C. T. Blanchet seconded this motion.

Mr. Satow proposed, as an amendment, that the words "in the form of some rule" be omitted. The amendment was not seconded.

Mr. Bramsen's motion was then adopted, and the following gentlemen were elected members of the Committee, and powers were given them to add, if necessary, to their number: As Members of Council—Dr. J. C. Hepburn, Mr Satow, Mr. Chamberlain; as ordinary Members—Mr. Bramsen, Mr. Knipping, Mr. Gubbins.

Mr. B. H. Chamberlain then read a paper entitled "Suggestions for a Japanese Rendering of the Psalms."

Mr. E. Satow read a paper entitled "Ancient Sepulchral Mounds in Kaudzuke." Some discussion followed the reading of both papers and the thanks of the Society were voted to the authors.

The Meeting was then adjourned.

List of Presents.

SERIALS.

Boletin de la Sociedad Geografica de Madrid, for Nov. and Dec., 1879.
Bulletin of the Imperial Russian Geographical Society, 2 Nos., 1879.

Bulletin de la Société de Géographie, Paris, Nov., 1879.
China Review for Nov. and Dec., 1879, and Jan. and Feb., 1880.
Chinese Recorder for Jan. and Feb., 1880.
Celestial Empire for March, 1880, 4 Nos.
Cosmos di Guido Cora, Dec. 28, 1879.
Description of new Indian Lepidopterous Insects ; Asiatic Society, Bengal, 1879.
Journal of the Anthropological Institute of Great Britain and Ireland, Aug. and Nov., 1879.
Oesterreichische Monatsschrift für den Orient for Jan. and Feb., 1880.
Proceedings of the Royal Geographical Society for Jan. and Feb., 1880.
Report of the Numismatic Society of Philadelphia, 1878-79.
Revue Orientale et Americaine.
Roman-Urdú Journal for Dec. 1879 and Jan. 1880.
Zeitschrift für Wissenschaftliche Geographie—Band I. Heft 1, 1880.
Japan Weekly Mail, Jan. 17-April 10, 1880.

BOOKS.

Manners and Customs of the Japanese, with Illustrations; by A. Humbert, (English edition).
The Mikado's Empire ; by W. E. Griffis (both purchased for the Library).
Japanese Chronological Tables, by W. Bramsen.
Dr. Petermann's Itinerary Sketch of the Naka-sen-dō.
Memoirs of the Science Department of the University of Tōkiyō, Vol. II, on Mines and Mining in Japan, by C. Netto.

TŌKEIŌ, May 11th, 1880.

A General Meeting was held at the Shō hei Kuwan, Seidō, Tōkiyō, on Tuesday, May 11th, 1880, Dr. Divers, President, in the chair.

The minutes of last meeting were read and approved.

The Recording Secretary intimated that the Council had decided to reprint Vol. II. of the Transactions, of which only a very few copies remain, in the event of there being a sufficient number of subscribers to cover the cost, and requested that intending purchasers should send in their names.

The election of Dr. F. W. Dyce Fraser, and Mr. Luther W. Mason, as ordinary members, was announced.

The Librarian reported the receipt of various presents, a list of which is appended. Thanks were ordered.

Dr. H. Faulds directed the attention of the Society to an example of tattooing which had come under his notice, and exhibited the specimen referred to.

Mr. J. Conder then read his paper entitled "Japanese Costume; Part I.—Court Dress." A short discussion followed, after which the meeting was adjourned.

List of Presents.

Agricultural and Horticultural Society of India; Journal: Vol. VI, Pt. 2.
American Geographical Society; Bulletin: 1878, No. 5.
American Geographical Society; Journal: Vol. VII, VIII, IX, 1875-1877.
American Philosophical Society; Proceedings: Vol. XVII and XVIII, Nos. 100-103.
American Philosophical Society; List of Surviving Members: 2 copies.
American Philosophical Society; Paper by H. Phillips, Jr., on Old Works on Cosmography.
Asiatic Society of Bengal; Journal: Vol. XLVIII, Pt. 1, No. 4.
Boston Society of Natural History; Proceedings: Vol. XIX, Pts. 1-4.
Boston Society of Natural History; Proceedings: Vol. XX, Pt. 1.
Celestial Empire; Vol. XV, Nos. 14-15.
China Review; Vol. VIII, No. 4.
Cosmos di Guido Cora; Vol. V.
Erlauternde Angaben über den IV Band der Reisen in Indien und Hochasien, from H. Schlagintweit-Sakünlünski.
Geological Survey of India; Records: Vol. XIII, Pt. 1.
Japan Weekly Mail, Vol. 4, Nos. 16-19.
Japanese Chronological Tables; by Wm. Bramsen (reported at last meeting).
Naka-sen-dō in Japan; by Dr. J. J. Rein, in Dr. Petermann's Mittheilungen, No. 59 (reported at last meeting).
New South Wales' Council of Education; Report for 1878.
Oesterreichische Monatsschrift für den Orient, März 1880.
Roman-Urdú Journal, Vol. III, No. 21.
Royal Geographical Society; Proceedings: March, 1880.
Smithsonian Institution; Report for 1877.
Smithsonian Institution; Archæological Collection of U. S. National Museum.
Smithsonian Institution; Remains of later pre-historic man.
Sociedad Geografica de Madrid; Boletin, Tome VIII, Nos. 1-2.
Société de Géographie; Bulletin, Dec. 1879, Jan. 1880.
U. S. Signal Service; Daily Bulletin, Nov. and Dec. 1874.
U. S. Signal Service; Daily Bulletin, Jan. 1875.
U. S. Signal Service; Daily Bulletin, Jan., Feb., March, 1877.

Tōkiyō, June 8th, 1880.

A General Meeting was held at the Shō hei Kuwan, Seidō, Tōkiyō on Tuesday, June 8th, 1880, Dr. Divers, President, in the chair.

The Minutes of last meeting were read and approved.

The election of the Rev. David Thompson and the Rev. Hugh Waddell as ordinary members was announced.

Messrs. Faulds, Holtham, and Tarring were elected to serve on the Committee for nominating officers and Members of Council for the ensuing session.

The Librarian reported receipt of the presents in the annexed list. Thanks were ordered.

Professor David Brauns read a paper "On the Systematic Position of the Itatchi, or *Mustela Itatsi* (Temminck and Schlegel)."

Professor Edward Kinch read a paper entitled "Contributions to the Agricultural Chemistry of Japan." Votes of thanks were passed to the authors of the papers, and the meeting was adjourned.

List of Presents.

Memoirs of the Department of Science of the University of Tōkiyō, Vol III, Part 1.
Harvard College Museum of Comparative Zoology, Vol. VI, No. 3.

MINUTES OF MEETINGS.

YOKOHAMA, June 11, 1880.

A General Meeting was held at the Grand Hotel, Yokohama, on Friday, June 11th, Mr. Keswick, Vice-President, in the chair.

Present: Mr. Keswick, Dr. Hepburn, Messrs. Bisset, Dallas, and Walsh.

The Chairman explained with regret that Mr. Hodges, the Recording Secretary, was prevented by illness from attending. Mr. Dallas was requested to take the minutes of the meeting.

The business of the evening being to elect three ordinary members to serve on the Nominating Committee, to meet at the residence of Dr. Divers, the President, at 4.30 p.m. on Monday, the 14th inst., Dr. Lawrenson, Mr. James, and Mr. Shand were unanimously elected.

A translation, by Mr. F. V. Dickins, of an essay by Signor Carlo Puini "On the Shichi Fukujin, or Seven Gods of Happiness," was laid on the table, and after some complimentary remarks from Mr. Dallas, who had looked through it, it was ordered to be taken as read, it being considered undesirable to read it to so small an audience.

The meeting was then adjourned.

TÔKIYÔ, June 29, 1880.

The Annual Meeting was held at the Shô-hei-kuwan, Seidô, Tôkiyô, on Tuesday, June 29th, 1880, Dr. Divers, President, in the chair.

The Minutes of the Tôkiyô meeting of June 8th and of the Yokohama meeting of June 11th were read and approved.

The Librarian reported the receipt of various presents, a list of which is appended. Thanks were ordered.

Messrs. Brauns and Cooper were nominated scrutators of the voting papers.

The Corresponding Secretary then read the Report of the Council, including the Treasurer's Balance Sheet, for the Session 1879-80. The Report was adopted without discussion.

The voting papers having been counted, the President declared that the result of the election of officers and Members of Council for the ensuing session was as follows:—

President, Dr. Edward Divers; Vice-Presidents—B. H. Chamberlain, Esq., J. J. Keswick, Esq.; Corresponding Secretary, E. M. Satow, Esq.; Recording Secretaries—C. H. Dallas, Esq., J. A. Ewing, Esq.; Treasurer, W. J. S. Shand, Esq.; Librarian, Rev. C. T. Blanchet; Members of Council—Rev. J. L. Amerman, R. W. Atkinson, Esq., J. Bisset, Esq., W. Bramsen, Esq., J. H. Gubbins, Esq., Rev. L. H. Gulick, D. D., Dr. J. C. Hepburn, G. J. L. Hodges, Esq., M. M. Scott, Esq., T. Walsh. Esq.

Professor Atkinson then read a paper on the Manufacture of Sugar in Japan, by K. Ota, Graduate of the University of Tôkiyô.

A paper by the Rev. Dr. Edkins, entitled "Contributions to the History of the Japanese Transcription of Chinese Sounds," was ordered to be taken as read.

The meeting was then adjourned.

PRESENTS.

Anthropological Institute of Great Britain and Ireland; Journal, Vol. IX. No. 3.
Asiatic Society of Bengal; Proceedings, No. 1, Jan. 1880.
Celestial Empire, Vol. XV., Nos. 16-22.
China Review, Vol. VIII., No. 5.
Chinese Recorder, Vol. XI., No. 2.
Cosmos, Vol. V., Nos. 11 and 12, by Guido Cora.
Historical and Philosphical Society of Ohio; Journal.
Japan Weekly Mail, Vol. IV., Nos. 20-26.
Monatsschrift für den Orient, April 15, 1880.
Museum of Comparative Zoölogy, Harvard, U. S. A.; Bulletin.
Roman-Urdú Journal; Vol. III, No. 22.
Royal Geographical Society; Proceedings, April, 1880.
Royal Society of Tasmania; Proceedings, 1877-8.
Société de Geographie, Bulletin; Feb. 1880.
Société des Etudes Japonaises, Chinoises, Tartares et Indo-Chinoises; Mémoires.
Sociedad Geografica de Madrid; Boletin.

REPORT OF THE COUNCIL.

In presenting their Report for the past year, the Council have much pleasure in recording that while the number of General Meetings held during the past year has been less than in previous years, the papers contributed by members exhibit a constant increase in the number of workers at subjects which fall within the scope of the Society's labours, several new and important subjects having now been taken up for the first time. The number of General Meetings held has been ten at Tôkiyô and one at Yokohama, at which seventeen papers were read. A list of the latter is given in Appendix A to this Report.

Twelve new members have been elected, and four have resigned.

During the recess in the autumn of last year the Society had the pleasure, in conjunction with the Japanese Geographical Society and the Deutsche Gesellschaft für Natur und Völker-kunde Ostasiens, of welcoming Professor Nordenskjöld and the other members of the Swedish Arctic Expedition, at a public dinner in the Hall of the Imperial College of Engineering, on which occasion the Honorary Membership of the Society was conferred upon Professor Nordenskjöld.

The Council have also thought it desirable to add to the list of Honorary Members the names of the Rev. Dr. E. W. Syle, in recognition of the services rendered by him to the Society from its foundation up to his resignation of the office of President previous to leaving this country, and of the Rev. Dr. Joseph Edkins, whose contributions to Chinese philology have been acknowledged by scholars to be of the highest value.

A list of the Journals, Transactions and Proceedings received from various learned bodies in different parts of the world, in exchange for the Society's Transactions, will be found in Appendix B.

During the past year the Council have felt compelled to restrict the purchase of books for the Library within the narrowest limits, owing to the want of funds for this purpose. On the other hand several valuable works have been presented by members and friends of the Society. A list of these additions will be found in Appendix C.

The Council beg to tender their thanks to the Minister of Education for the use of a large hall at the Shô-hei-kuwan for the meetings of the Society at Tôkiyô, and to the Proprietors of the Grand Hotel for the use of a room for the meeting held at Yokohama.

The following balance sheet shows the present condition of the Society's finances.

ASIATIC SOCIETY OF JAPAN *In Account with* T. W. HELLYER.

1879.	Dr.		1879.	Cr.	
July 24.	To Advertising in *Japan Herald*, July 1877 to Dec. 1878	$104.95	July 1.	By Balance	$707.08
Nov. 29.	" R. Meiklejohn & Co.: Printing and binding Transactions	545.05	" 1.	" Interest on account in Hongkong and Shanghai Bank	3.55
	" " Circulars and voting papers	18.00	1880. June	" Subscriptions from Members:	
	" Photographs for J. Milne's paper "Prehistoric Remains"	50.00		2 for 1878 $10.00	
	" Map for R. W. Atkinson's paper "Yatsugatake, etc."	30.00		26 " 1879 130.00	
Dec. 1880.	" Refreshments at Meetings in Tôkiyô	9.62		125 " 1880 625.00	765.00
Feb.	" Corresponding Secretary's account for carriage and postage on Transactions	25.25		" do. from non-resident members:	
March	" R. Meiklejohn & Co.: Cuts and photographs for several papers	27.75		6 for 1879 18.00	
	Printing and binding Part I. Vol. VIII	209.25		12 " 1880 36.00	54.00
	" Recording Sec. W. G. Dixon for Printing and cost of postal cards	4.58		" 9 Entrance Fees	45.00
	" Minute book and Stationery	5.00		" Sale of Transactions by Librarian	52.00
April 13.	" Advertising in *Japan Mail*, Nov. 1879 to March 1880	16.00		" " " " by Kelly & Co., and Lane Crawford & Co	77.55
" 16.	" Subscription to *Celestial Empire* to Dec. 1880.	7.00			
June	" Cost of collecting subscriptions	5.06			
	" Stationery and Postage, Treasurer's account	3.60			
" 21.	" Recording Sec. J. A. Ewing for Printing and cost of postal cards and carriage on Transactions, yen 11.67 @ 136	8.58			
	" Binding 19 vols. *Japan Mail*, etc	5.54			
	" Purchase of books, "Mikado's Empire," etc	29.35			
	" Librarian's account for postage	1.40			
" 22.	" Balance in Hongkong and Shanghai Bank	598.15			
		$1704.18			$1704.18

Yokohama, June 22, 1880.

June 22. By Balance in Hongkong and Shanghai Bank.. $598.15

(MAY)

APPENDIX. A.

List of Papers Read During the Session 1879-80.

Yatsu-ga-take, Haku-san and Tate-yama; by R. W. Atkinson, B. Sc.
Proposed Arrangement of the Korean Alphabet; by W. G. Aston.
Notes on Stone Implements from Otaru and Hakodate; by John Milne, F.G. S.
Hideyoshi and the Satsuma Clan in the Sixteenth Century; by J. H. Gubbins.
Land Provisions of the Taihô Riô; by C. J. Tarring.
On the Japanese Letters "Chi" and "Tsu"; by J. Edkins, D. D.
Reply to Dr. Edkins on "Chi" and "Tsu"; by Ernest Satow.
Catalogue of the Birds of Japan; by T. Blakiston and H. Pryer.
The "Kana" Transliteration System; by F. V. Dickins.
Notes on the Porcelain Industry of Japan; by R. W. Atkinson, B. Sc.
Japanese Chronology and Calendars; by Wm. Bramsen.
A Short Memoir from the Seventeenth Century; by Basil Hall Chamberlain.
Suggestions for a Japanese Rendering of the Psalms; by Basil Hall Chamberlain.
Ancient Sepulchral Mounds in Kaudzuke; by Ernest Satow.
The History of Japanese Costume; by Josiah Conder, M. R. I. B. A.
Contributions to the Agricultural Chemistry of Japan; by Edward Kinch, Professor of Chemistry.
On the Systematic Position of the Itachi; by Professor D. Brauns.
The Seven Gods of Happiness; by C. Puini, translated by F. V. Dickins.
Manufacture of Sugar in Japan; by K. Ota.
Influence of Chinese Dialects on the Japanese Pronounciation of the Chinese Part of the Japanese Language; by J. Edkins, D. D.

APPENDIX B.

Exchanges.

Agricultural and Horticultural Society of India; Journal.
American Geographical Society; Bulletin.
American and Oriental Literary Record; Trübner.
American and Oriental Society; Proceedings.
American Philosophical Society; Proceedings.
Anthropological Institute of Great Britain and Ireland; Journal.
Asiatic Society of Bengal; Journal.
Asiatic Society of Bengal; Proceedings.
Bataviaasch Genootschap; Notulen.
Bataviaasch Genootschap; Tijdschrift.
Bataviaasch Genootschap; Verhandlingen.
Boston Society of Natural History; Proceedings.

Catalog der Bibliothek der Deutschen Gesellschaft.
Celestial Empire; Shanghai.
China Review; Hong Kong.
Chinese Recorder and Missionary Journal.
Cosmos; by Guido Cora.
Description of new Indian Lepidopterous Insects; published by the Asiatic Society of Bengal.
Deutsche Gesellschaft für Natur-und Völker-kunde Ostasiens; Mittheilungen.
Geological Survey of India; Records.
Historical and Philosophical Society of Ohio; Journal.
Imperial Russian Geographical Society; Bulletin.
Japan Weekly Mail; Yokohama.
Journal Asiatique; Paris.
Museum of Comparative Zoölogy; Harvard College, Cambridge, Mass., U. S. A.: Bulletin.
New South Wales, Construction and Working of Railways; Report, 1876.
New South Wales, Council of Education; Report, 1877.
New South Wales, Mining Department; Annual Report, 1877.
Numismatic and Antiquarian Society, Philadelphia; Proceedings.
Oesterreichische Monatsschrift für den Orient.
Om Spetelske; by Dr. Elkund.
Pennsylvania Magazine of History and Biography.
Roman-Urdú Journal.
Royal Asiatic Society, Bombay Branch; Journal.
Royal Asiatic Society, North China Branch; Journal.
Royal Asiatic Society, Straits Branch; Journal.
Royal Society of London; Proceedings.
Royal Society of New South Wales; Journal and Proceedings.
Royal Society of Tasmania; Proceedings.
Smithsonian Institute, Archæological Remains of the U. S. National Museum by Chas. Rau.
Smithsonian Institute, Remains of Later and Prehistoric Man; by W. H. Dall.
Smithsonian Institute, Report for 1877.
Sociedad Geografica de Madrid; Boletin.
Société d'Acclimatation; Bulletin.
Société de Géographie; Bulletin.
Société des Etudes Japonaises, Chinoises, Tartares et Indo-Chinoises; Annuaire.
Société des Etudes Japonaisès, Chinoises, Tartares et Indo-Chinoises; Memoires.
Tôkiyô University, Science Department:

Vol. I. pt. 1. Shell Mounds of Omori.
" II. Mines and Mining in Japan.
" III. pt. 1. Meteorology of Tôkiyô; Report, 1879.

U. S. A. Signal Service; Daily Bulletin.
U. S. A. Signal Service; Report of Chief Signal officer.
Zeitschrift für Wissenschaftliche Geographie.

APPENDIX C.

Books Added to the Library During the Past Year.

Aithihasika Rahesiya—"Historical Secrets;" 3 vols. in one, by Dr. Baboo Ram Das Sen, in Bengali prose, presented by the author.
Album of Japanese and Korean Illustrations, by N. McLeod; presented by Rev. Dr. Syle.
Bataviaasch Genootschap; Ten Mitte van T. Gemeen 1778-1879.
Bataviaasch Genootschap; Medaille, 1778-1888.
Bataviaasch Genootschap; van Kunsten en Wetenschappen gedurende de Eerste Eeuw.
Bataviaasch Genootschap; Verslag der Viring van het Honderjarig Bestaan; presented by the Bataviaasch Genootschap.
Cities and Towns of China, by G. M. H. Playfair; presented by the author.
Erlauternde Angaben über den IV Band der Reisen in Indian und Hochasien, by Hermann von Schlagintweit Sakünlünski; presented by the author.
Japanese Chronological Tables, by Mr. Wm. Bramsen; presented by the author.
Japan and the Japanese, illustrated, by Aimé Humbert; purchased.
Japanese Medical Books, 3 vols; presented by Dr. Mc Cartee.
La Genèse du Langage et du Mystère Antique, par P. L. F. Philastre; presented by the author.
Sanskrit Dictionary, by Hem Chandra; presented by Dr. Baboo Ram Das Sen.
The Mikado's Empire, by W. E. Griffis; purchased.
The Native Races of the Pacific States, 5 vols., by H. H. Bancroft; presented by Rev. Dr. Syle.
The Satsuma Rebellion, by A. H. Mounsey; presented by Mr. E. Satow.
U. S. Expedition to Japan, by Com. Perry, 3 vols.; presented by Rev J. L. Amerman.

Pamphlets, Leaflets, Etc.

Awaji (Island), Notes on, by J. Eaton; presented by the author.
Imperial Government Railways; Report on Route between Tôkiyô and Kiôto, and across to Niigata, with Map, by R. V. Boyle; presented by the author.
Map of the Vicinity of the Bay of Tôkiyô and of the Volcano Fuji no yama, by Dr. J. Rein and B. Hassentein; presented by the authors.
Sketch of a Journey on the Nakasendô, by Dr. J. Rein; presented by the author.
Tsuchi Ningio—"Clay Figures"—Photographs; presented by Mr. von Siebold.
Various catalogues of books from different publishing firms.

LIST OF MEMBERS.*

Honorary Members.

Admiral Sir C. Shadwell, K. C. B.
Captain Arthur, R. N.
S. Wells Williams, LL. D.
Sir Rutherford Alcock, K. C. B.
Sir Thomas F. Wade, K. C. B.
Professor Geo. E. Day, Yale College, U. S. A.
Professor W. D. Whitney, New Haven, U. S. A.
Hon. Geo. P. Marsh, Rome.
A. W. Franks, British Museum.
Professor J. J. Rein, Marburg, Germany.
Baron A. Nordenskjöld, Stockholm.
Rev. E. W. Syle, D. D.
Rev. Joseph Edkins, D. D.

Resident Members.

[The Black, Roman, and Italic types indicate residence at **Yokohama**, in Tôkiyô, and at the *Outports* and *in the Interior*. Members changing their addresses are requested to notify the Corresponding Secretary.]

Allen, H., Jr.
Amerman, Rev. J. L.
Angas, W. M.
Aston, W. G.
Atkinson, R. W.
Beadon, R.

* Corrected to December, 1880.

Bellamy, A.
Bingham, Hon. J. A.
Bisset, J.
Blanchet, Rev. C. T.
Bramsen, Wm.
Brauns, D.
Brinkley, Capt. F., R. A.
Brooke, J. H.
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